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SEDIMENTARY SEQUENCE STUDY: RESULTS OF LABORATORY SORPTION AND DIFFUSION EXPERIMENTS

Report No 88-85-K

H.M. Johnston
Hydrogeologist
and
D.J. Wilmot
Hydrogeology Technologist
Rock Sciences Section
Civil Research Department

Abstract

A series of diffusion and adsorption experiments were conducted on various rock formations to provide quantitative data for the evaluation of massive sedimentary sequences as alternative geologic media for the disposal/long-term management of radioactive wastes. Use of the data in simple simulations models describing fracture flow rates indicated that the migration of a front of nonreactive radionuclide would be significantly slower than the rate of groundwater flow in the fracture. The retardation of reactive radionuclides such ^{90}Sr and ^{137}Cs with respect to groundwater flow was even more dramatic indicating that rock matrices having relatively low distribution coefficients can act as a substantial sink for migrating radionuclides.

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To Dr. C.F. Lee
Manager
Geotechnical and Hydraulic
Engineering Department
Design and Development Division

Attn: Mr. R.J. Heystee

SEDIMENTARY SEQUENCE STUDY:
RESULTS OF LABORATORY SORPTION AND DIFFUSION EXPERIMENTS

1.0 INTRODUCTION

The Canadian concept for the management of nuclear fuel wastes relies on disposal in deep underground repositories constructed in plutonic rock of the Canadian Shield (Hancox, 1987). If radionuclides are released from the repository they may enter the groundwater flow regime and consequently be transported to the biosphere. Since fracture networks offer the path of least hydraulic resistance, transport of radionuclides entering a fractured rock mass will occur primarily along the fracture. Although advection through the rock matrix is usually negligible compared to fracture-flow velocities, molecular diffusion from the fractures into the porous matrix can act to retard the advance of radionuclides in the system. If the nuclides are also being sorbed onto the rock material itself this will act as a further attenuation mechanism.

It is now recognized that matrix diffusion and sorption are highly effective mechanisms for the retardation of contaminant transport along primary fracture

flow pathways (Nerentnieks, 1980; Tang et al., 1981; Sudicky and Frind, 1982 and 1984). The rock matrix thereby acts as a sink for the migrating radionuclides until decay occurs. It is imperative therefore that diffusive fluxes and sorption parameters be understood and incorporated into any predictive contaminant transport models.

As part of the on-going Sedimentary Sequence Study (Heystee and Freire-Canosa, 1988), radionuclide sorption and tracer diffusion experiments were performed on rock core samples obtained from Darlington GS (Borehole UN-2) , Lakeview GS (Borehole OHD-1) as supplied by R. Heystee, Geotechnical and Hydraulic Engineering Dept, Design and Development Division, and from Chippawa, Ontario (Borehole CH-1) obtained from K. Novakowski, Canadian Centre for Inland Waters. This report discusses the results of this research program.

Specific objectives of the study were:

1. To determine Sr and Cs sorption isotherms for various sedimentary rock types,

2. to obtain tortuosity factors by measuring non-reactive (^{3}H; ^{36}Cl) diffusion coefficients for a variety of rock types, and

3. to evaluate the potential of matrix diffusion and sorption as a retardation mechanism on transport of radionuclides such as Sr and Cs along fracture pathways.

2.0 MATERIALS AND METHODS

2.1 Sample Description and Preparation

In total, samples from eight rock units were tested, two from Borehole UN-2, Darlington GS (Lindsay and Verulam Formations), five from Borehole OHD-1, Lakeview GS (Georgian Bay Shale, Lindsay Limestone, Gull River Limestone, Shadow Lake Sandstone, and Precambrian Granitic Gneiss), and one from

Chippawa, Ontario (Queenston Shale). A general description of the samples and their approximate stratigraphic locations are given in Table 1, however for more detailed information the reader is referred to Semec, 1985; Grass, 1986; and Lo, 1987.

Each rock core was sliced using a diamond rock saw, equipped with a 20.3 cm blade, into approximately 3 mm thick slabs for use in the diffusion experiments. Disc thicknesses of between 1 mm and 4 mm were cut for use in the sorption tests. The slices were then immediately placed in deionized water prior to further processing. In order to insure an even surface, the discs were polished to a uniform thickness using either #240 Silicon Carbide powder (Darlington cores) or a Model 400 Ingram thin section grinder (Lakeview cores). The discs were then placed in a desiccator filled with deaired, deionized water and placed under a vacuum for a minimum of 14 days to insure saturation. Prior to use in the diffusion and batch experiments the discs were removed from the desiccator, any excess surface water removed and the samples weighed and measurements for the average thickness and disc diameter obtained.

2.2 Adsorption Isotherms

Distribution coefficients for strontium were determined by conventional equilibrium batch methods. In this procedure a sample disc was placed upright in a sealable polypropylene container to which 100 mL of equilibrating solution were added. For the Queenston Shale samples, the core was crushed and the 4.8 mm to 0.59 mm size fractions retained for analysis. One hundred milliliters of equilibrating solution were then added to a weight equivalent of a 4 mm intact disc (17.8 g). The equilibrating solution used was deionized water to which either radioactive ^{85}Sr or ^{137}Cs was added to allow for radiometric analyses. Two to three ^{85}Sr concentrations (1.28×10^{-7} M and 1.19×10^{-7} M for the Darlington rock cores; 5.88×10^{-8} M, and 8.73×10^{-6} M for Lakeview cores; 5.39×10^{-10} M, 1.18×10^{-8} M, and 1.19×10^{-6} M for

TABLE 1

ROCK CORE DESCRIPTION

Darlington GS - Borehole UN-2

Formation	Description	Vertical Depth (m)
Lindsay	limestone; thin poorly defined black shaley interbeds; fossiliferous; grey/dark grey; fine-grained	29.2-29.5
Lower Verulam	limestone; thin shaley interbeds fossiliferous; grey; fine-to-medium grained	84.5-84.9

Lakeview GS - Borehole OHD-1

Georgian Bay	grey-brown shale; dark grey, limestone interbeds	157.3-157.5
Lindsay	limestone; grey; argillaceous; fossiliferous	195.3-195.7
Gull River	limestone; light-grey; fine-grained	352.7-353.1
Shadow Lake	sandstone	370.1-370.2 370.5-370.6
Precambrian	granitic gneiss	385.0-385.4

Niagara - Chippawa Ontario - Borehole CH-1 (CCIW)

Queenston	shale; reddish-brown fine-medium grained	149.6-152.7

Queenston shale samples) and up to three ^{137}Cs concentrations (1.37×10^{-8} M, 1.36×10^{-10} M and 1.30×10^{-11} M) were used. All analyses were performed in triplicate.

Blank samples containing only the spiked equilibrating solution were included for use as standard values in order to compensate for any sorption effects on the container walls. The kinetics of adsorption were then determined by removing and counting 1 or 2 mL aliquots of the supernatant over time. The ^{85}Sr or ^{137}Cs activity obtained was expressed as counts per minute (cpm) and compared to the activity of an equal volume of the standard solution (initial equilibrating solution). The difference in activity was taken to be equal to the amount of tracer associated with the solid phase. When testing was completed, the discs were taken and oven-dried to 105°C to determine their dry weight.

Distribution coefficients were calculated both on a total mass ($mL.g^{-1}$) basis;

$$Kd = (C_{std} - C_{sol}) / C_{std} \times (V/M) \qquad (1a)$$

and on a surface area ($mL.cm^{-2}$) basis;

$$Kf = (C_{std} - C_{sol}) / C_{std} \times (V/SA) \qquad (1b)$$

where

C_{std} - activity in the initial equilibrating solution corrected for any container sorption effects (cpm)

C_{sol} - activity in the solution in contact with the solid phase (cpm) at a specific time

V - volume of solution added to the solid phase (mL)

M - oven-dry mass of the solid phase (g)

SA - total geometric surface area of the solid phase (cm^2)

2.3 Measurement of Diffusion Coefficients

2.3.1 Apparatus

In the diffusion experiments, a one dimensional, closed system was employed. The basic cell consisted of two 100 mL reservoirs separated by a rock sample disc; one reservoir (active) contained deionized water spiked with either ~0.5 $uCi.mL^{-1}$ ^{3}H or 1.02×10^{-4} M ^{36}Cl while the other reservoir (nonactive) contained only deionized water (Figure 1).

The central portion of the cell is comprised of 4.4 cm ID Duratemp silicone radiator hose, 11.4 cm in length. Prior to the diffusion tests, the silicone section of the hose was subjected to Sr batch experiments. After four weeks, no ^{85}Sr had been adsorbed and the hose material was considered to be appropriate for use in subsequent diffusion experiments.

A rock disc approximately 3 mm thick was then oriented horizontally in the centre of the silicone hose and held in place via a gear clamp, thus providing a leak-proof seal. Acrylic end caps were then inserted and sealed in place, again with the use of gear clamps.

The end caps contained two portals which were made of 1.8 mm ID hypodermic stainless steel tubing. To the inlet/sampling portal (reservoir side), a short length of 0.32 cm ID Tygon tubing was attached, while the outlet portal was set flush with the face of the end cap. This configuration facilitated sampling, enabled adequate mixing of the reservoir solutions during both the sampling procedure and stock solution circulation, and also allowed easy removal of any entrapped air in the active reservoir.

The system of a central silicone hose and separate end caps provided flexibility in the setup by enabling the choice of variable reservoir volumes

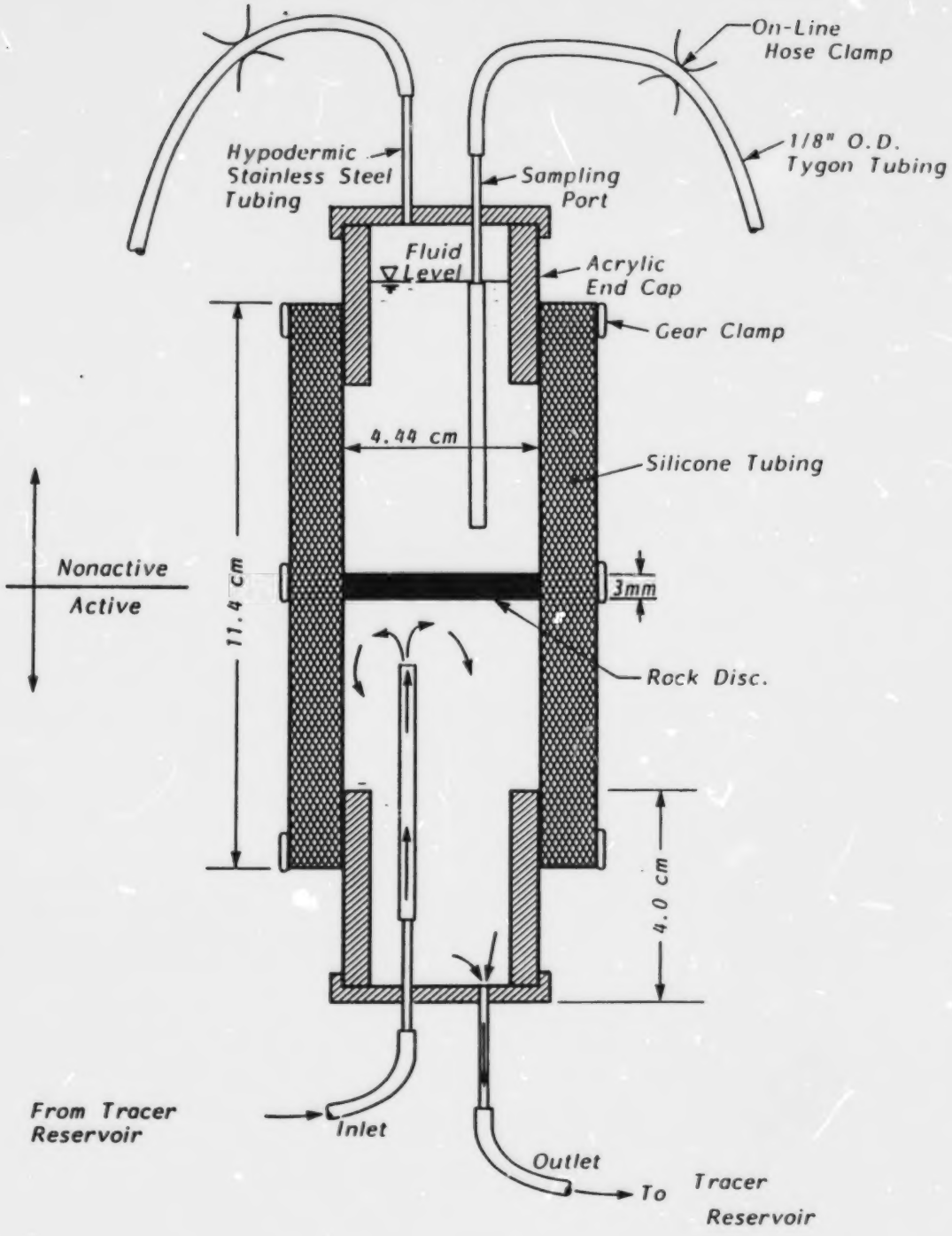


FIGURE 1

Schematic of Steady-State Diffusion Cell

simply by varying the length of the hose and the insertion depth of the end caps. Also, the system was fairly inexpensive, therefore the entire hose/disc unit could be discarded upon completion of the test.

To ensure a constant tracer concentration at the disc/active reservoir interface, the tracer solution was circulated from a central stock reservoir via a peristaltic pump at a rate of ~0.65 $mL.min^{-1}$. By using either a Manostat cassette pump or a Piper peristaltic metering pump, up to 10 cells could be accommodated, thus enabling several tests to be performed simultaneously.

2.3.2 Cell Filling and Sampling Procedure

Once the diffusion cell had been assembled, a 50 mL disposable syringe (plunger removed) was attached to the inlet portal of the active reservoir. Using a funnel, sufficient tracer solution was added to bring the fluid level to within ~5 mm of the top of the end cap (Figure 2). The syringe was then removed and replaced with Tygon tubing which was connected to the tracer stock/pump system and the pump then activated. At this time any entrapped air was removed. The reservoir was then placed, active side down, in a protective stand. The nonactive (sampling) reservoir was filled in a similar manner. A measured volume of deionized, deaired water was transferred into the reservoir, however, no attempt was made to remove the air space since the vertical orientation of the diffusion cell maintained solution contact with the surface of the rock disc.

Sampling of the nonactive reservoir was conducted one or more times daily in the initial stages of the diffusion experiments and then less frequently as the test progressed. A schematic of the sampling setup is given in Figure 2. In order to obtain a sample of the solution phase, the Tygon tubing was removed from the inlet/sampling portal and replaced with a modified 10 mL disposable syringe, and the hose clamp associated with the outlet portal was opened. Before sampling, the reservoir solution was mixed thoroughly by drawing the plunger back and forth several times. After mixing, the plunger was positioned near the pressure release hole in the syringe body. At this

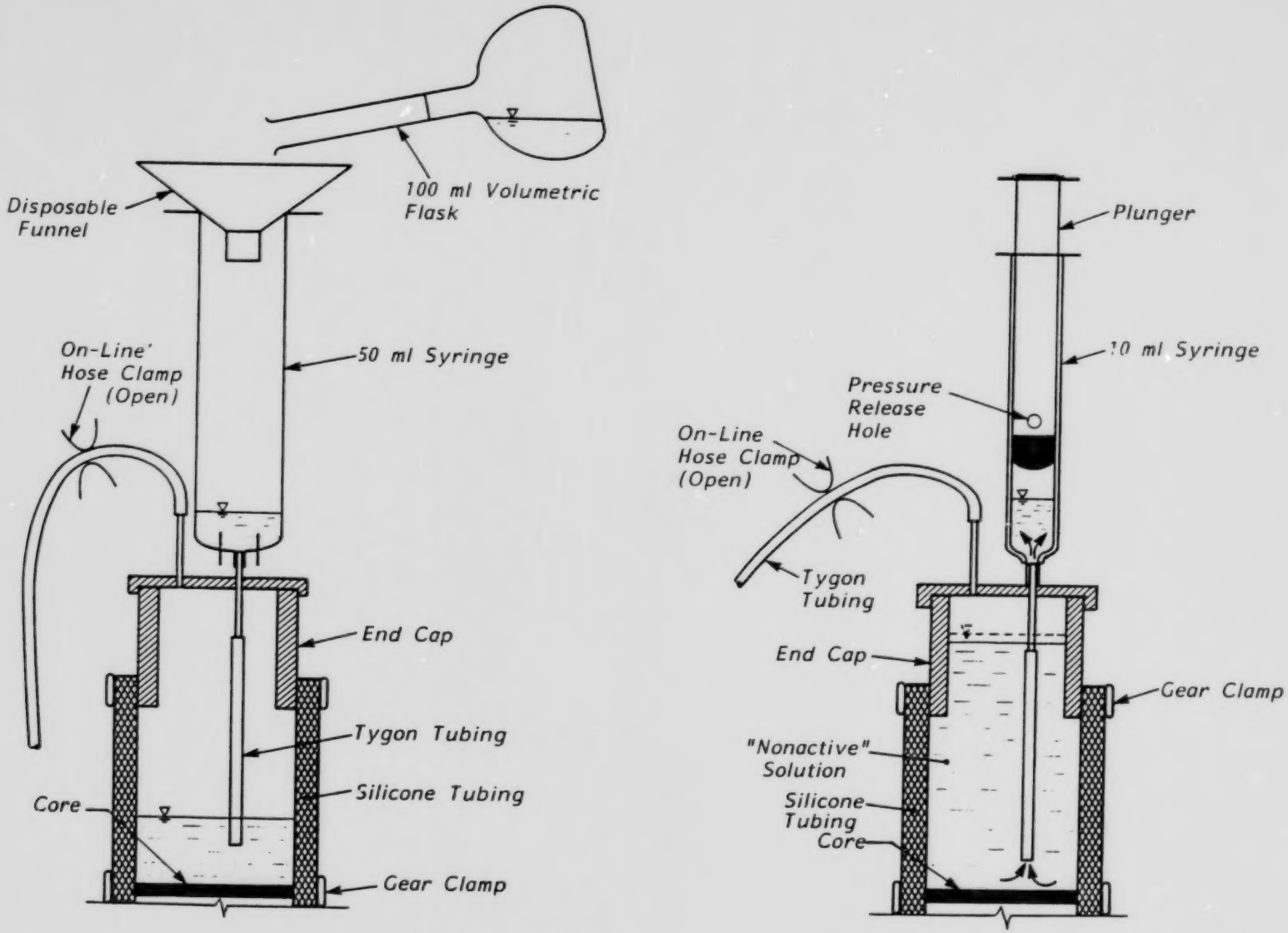


FIGURE 2

SCHEMATIC OF RESERVOIR FILLING AND SAMPLING PROCEDURES

time the outlet tubing was clamped and the plunger removed. A 1 or 2 mL sample of solution was then transferred to a glass scintillation vial for radiometric analysis. Following sampling the clamp was released on the outlet tubing, allowing the excess solution in the syringe to drain into the reservoir.

At the time of sampling the reservoir solution, a sample of the tracer stock solution was also obtained and counted for use as a standard. All tests were performed at room temperature (21-23°C).

2.3.3 Calculation of Diffusion Coefficients

The effective diffusion coefficients for tritium and ^{36}Cl through the rock discs were calculated from the mass transfer of the tracer, by diffusion, through the sample from time t_1 to t_2. A theoretical representation of the diffusion process is shown in Figure 3. The flux at the interface $x=\ell$ is described by Fick's first law, ie.

$$F = -D\ dC/dx\ |_{x=\ell} \qquad (2)$$

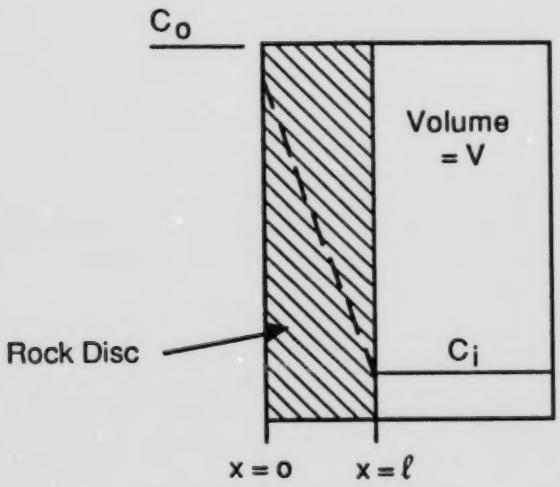
t is also given by the total mass of tracer (C_2) in volume V, at time t per unit area of the disc (A):

$$F = V/A\ dC_2/dt \qquad (3)$$

If we assume that the concentration gradient within the rock disc is linear, then Eq. (2) can be estimated by:

$$F = \Delta C_1\text{-}C_2\ /\ell \qquad (4)$$

Although this assumption is not strictly valid, if the disc used is relatively thin, the error introduced is within a few percent (Kumar, 1985).



Boundary Conditions

$C(x = o, t) = C_o \quad t \geq o$

$C(x = \ell, t) = o \quad t = o$

$C(x = \ell, t) = C_i \quad t = t_i$

FIGURE 3

Schematic of the Diffusion Process

Combining equations (3) and (4) gives:

$$V/A\ C_{2t1}-C_{2t2}/(t_1-t_2) = D\ [C_0-C_2/\ell] \qquad (5)$$

where

D - effective diffusion coefficient measured between times t_1 and t_2 ($L^2.T^{-1}$)
C_t - activity of tracer in the 'nonactive' reservoir at time t (cpm/dpm)
C_0 - activity of tracer in the stock solution (active reservoir) (cpm/dpm)
V - volume of solution in the 'nonactive' reservoir (L^3)
A - surface area of the rock disc (L^2)
ℓ - disc thickness (L)
t - time (T)

The observed diffusion coefficients were determined by linear regression of $CV\ell/CoA$ versus time (t) once linearity of the graph C/C_0 versus time had been visually established.

3.0 RESULTS AND DISCUSSION

3.1 Distribution Coefficients

3.1.1 Strontium Sorption Results

The distribution coefficients determined from the equilibrium batch experiments for Sr are given in Table 2. The corresponding physical characteristics of the samples plus the raw data are listed in Appendix A. The results given in Table 2 are the mean and standard deviation of the point values of the measured distribution curves which were found to be linear over the concentration ranges studied, after equilibrium had been attained (values constant over time and equilibrium solution concentration; Appendix A).

TABLE 2

Sr DISTRIBUTION COEFFICIENTS

Lakeview Core	Kf ($mL.cm^{-2}$)	Kd ($mL.g^{-1}$)
Georgian Bay Shale*	11.8 ± 1.3	28.8 ± 2
Lindsay Limestone**	3.2 ± .6	10.5 ± 2.0
Gull River Limestone***	0.348 ± .107	1.13 ± .34
Shadow Lake Sandstone**	13.3 ± 1.7	37.3 ± 4.3
Precambrian Granitic Gneiss*	0.97 ± .13	2.97 ± .43
Darlington Core*		
Lindsay Limestone	1.64 ± .34	11.7 ± 2.2
Lower Verulam Limestone	0.16 ± .04	0.96 ± .24
Niagara Core		
Queenston Shale**	N/A	169 ± 24

* average of 6 data points
** average of 12 data points
*** average of 24 data points
N/A surface area not available

Measured values on both a surface area (Kf) and mass (Kd) basis are reported for all samples except the Queenston Shale. Unfortunately, a competent rock disc for this core could not be obtained, therefore only Kd ($mL.g^{-1}$) results are given. It should be noted that the distribution coefficients presented on a surface area basis (Kf), due to the nature of the batch method, reflect the total disc volume used in the experiment (ie. measured Kf's are a function of disc thickness). The relationship between Kf and Kd is

$$Kf = \frac{Kd\ p_b}{VSA} \qquad (6)$$

where p_b is the bulk density ($g.cm^{-3}$) and VSA is the surface area divided by the disc volume.

The Kd results of the Sr sorption experiments (kinetics) are also shown graphically in Figures 4 to 11. Generally, plots of the distribution coefficient versus time exhibit an initially high sorption coefficient which gradually decreases to a constant value when equilibrium has been attained. The shape of the distribution curve may be a result of using deionized water as the equilibration solution. This could result in the gradual dissolution of carbonate minerals in the solid phase, thus inputting Ca, Mg, and stable Sr into solution. There is an initial sharp uptake of strontium on the exposed rock surfaces followed by diffusion into the rock matrix. As carbonate dissolution occurs, the total competing cation population of divalent ions increases, thereby causing a release of the initially sorbed ^{85}Sr ion in order to approach a new equilibrium distribution between the solution and solid phases. This process continues until a final physio-chemical equilibrium is attained ie. the solution phase concentration has stabilized and the sorption sites within the core are satisfied. The exception to this is seen in the Precambrian granite results of Figure 8. This core, being igneous rather than sedimentary in origin, contains no carbonate minerals, hence the solution chemistry is not greatly affected. The result is the classic form of the distribution curve which increases gradually over time due to a combination of

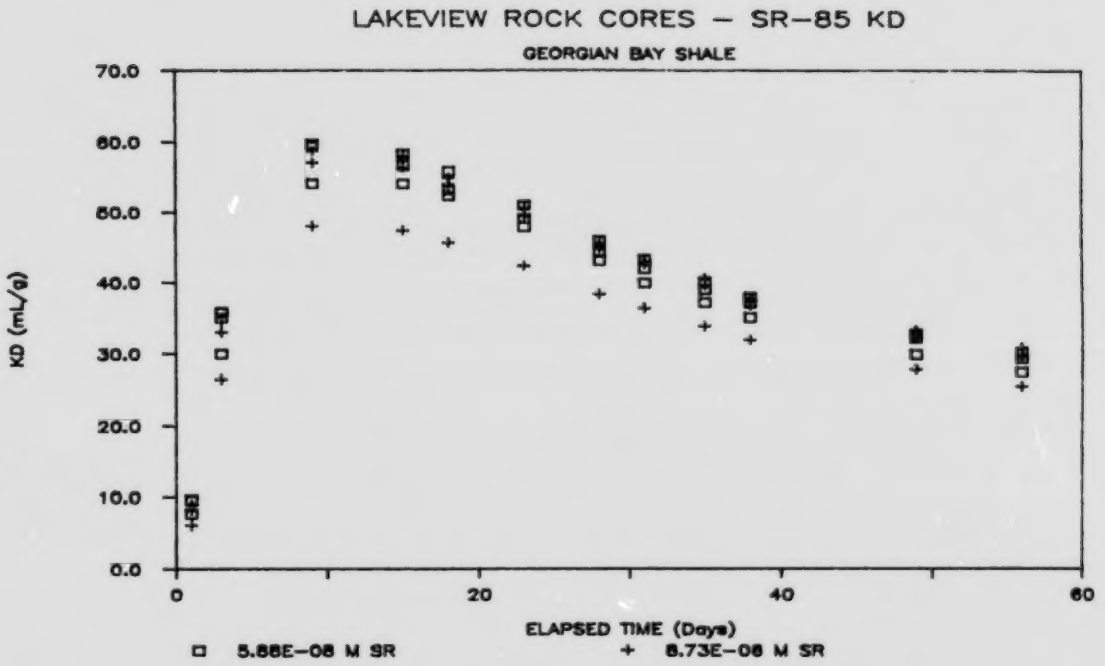


FIGURE 4

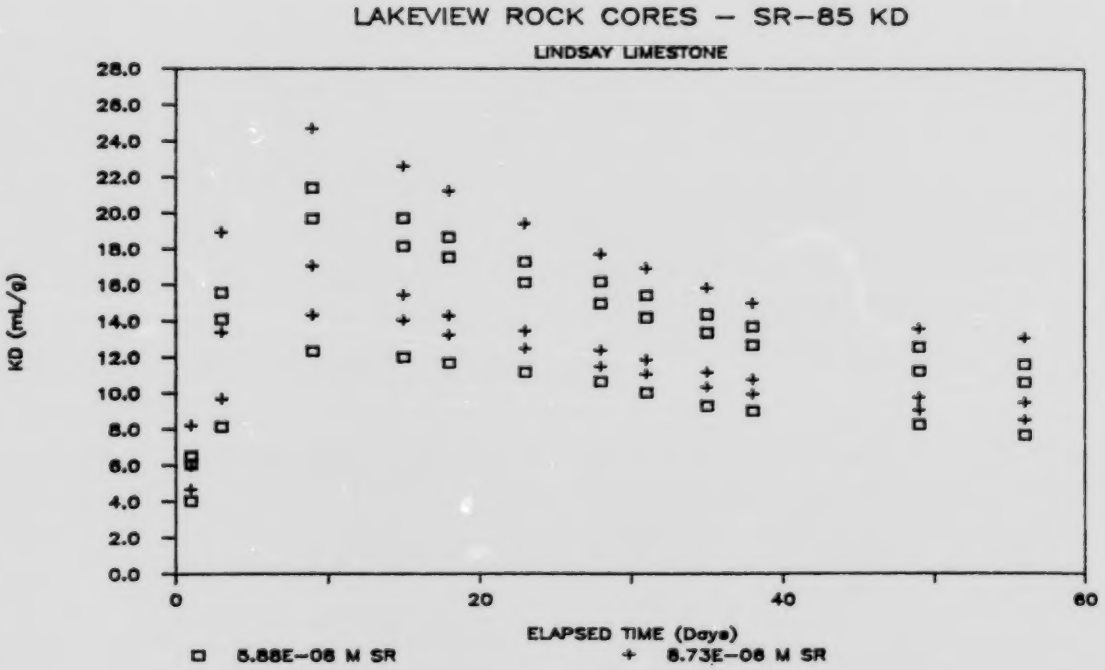


FIGURE 5

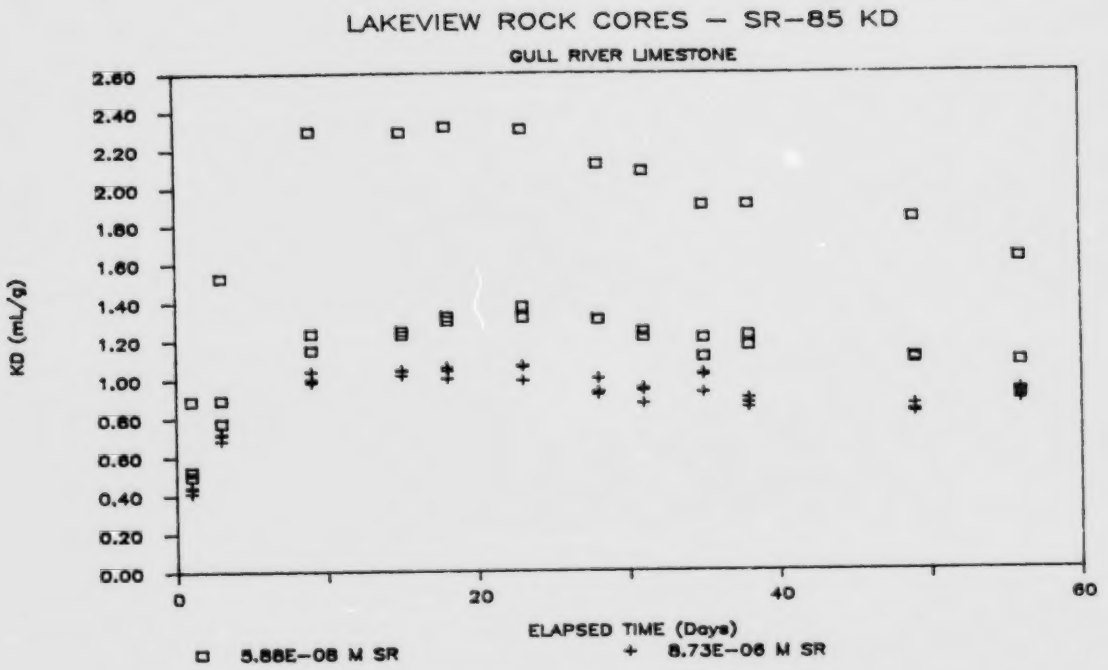


FIGURE 6

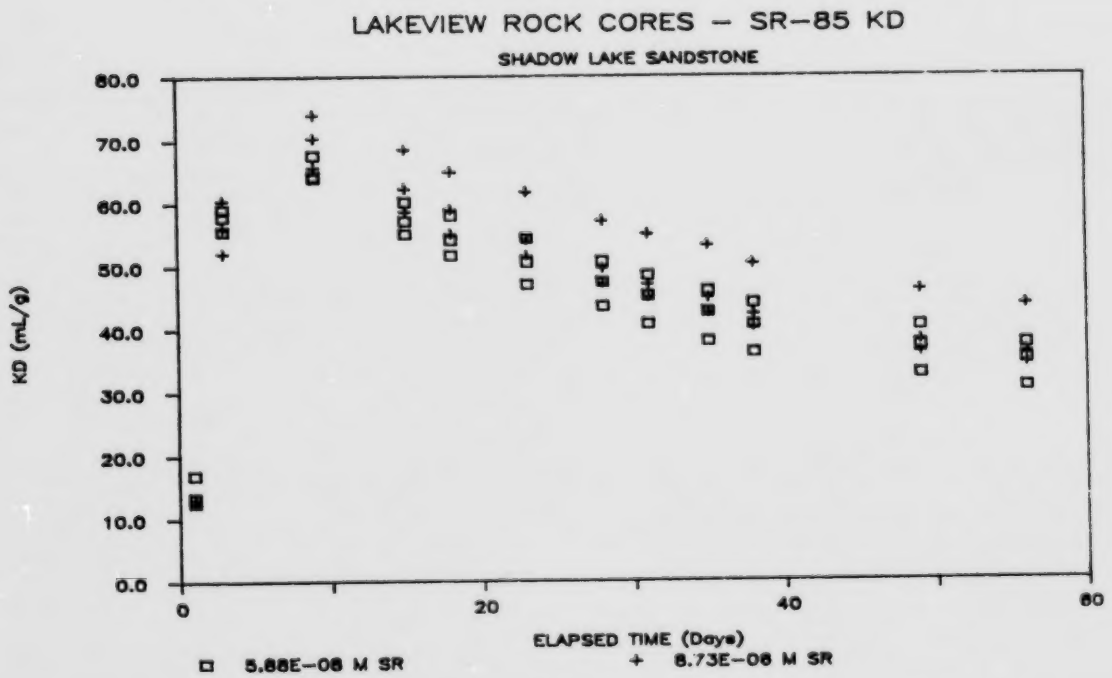


FIGURE 7

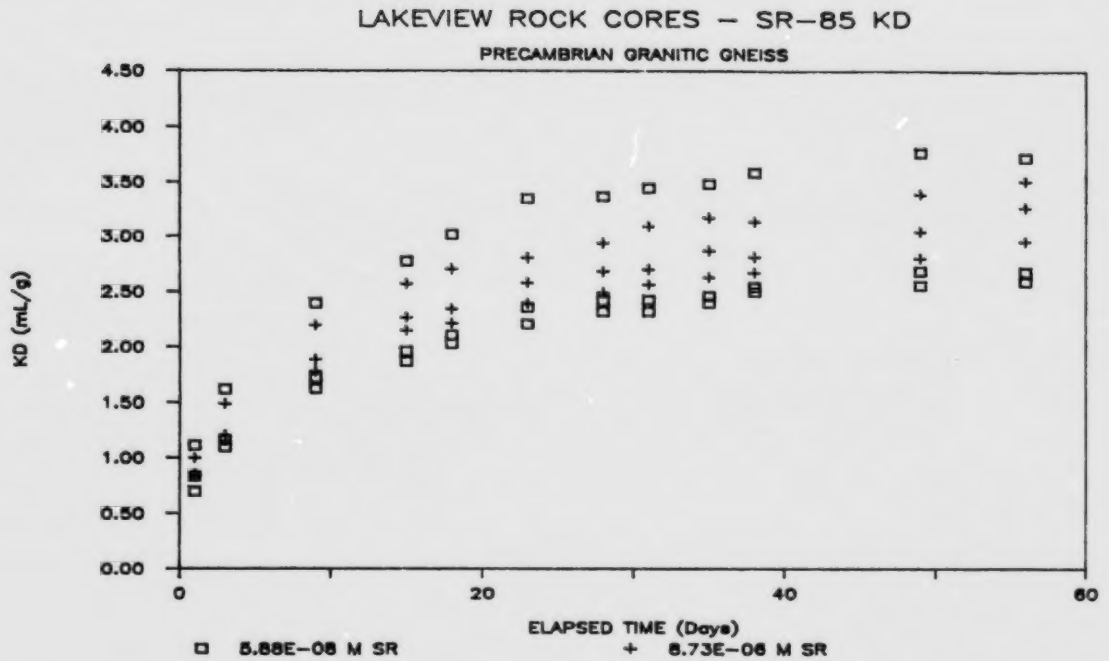


FIGURE 8

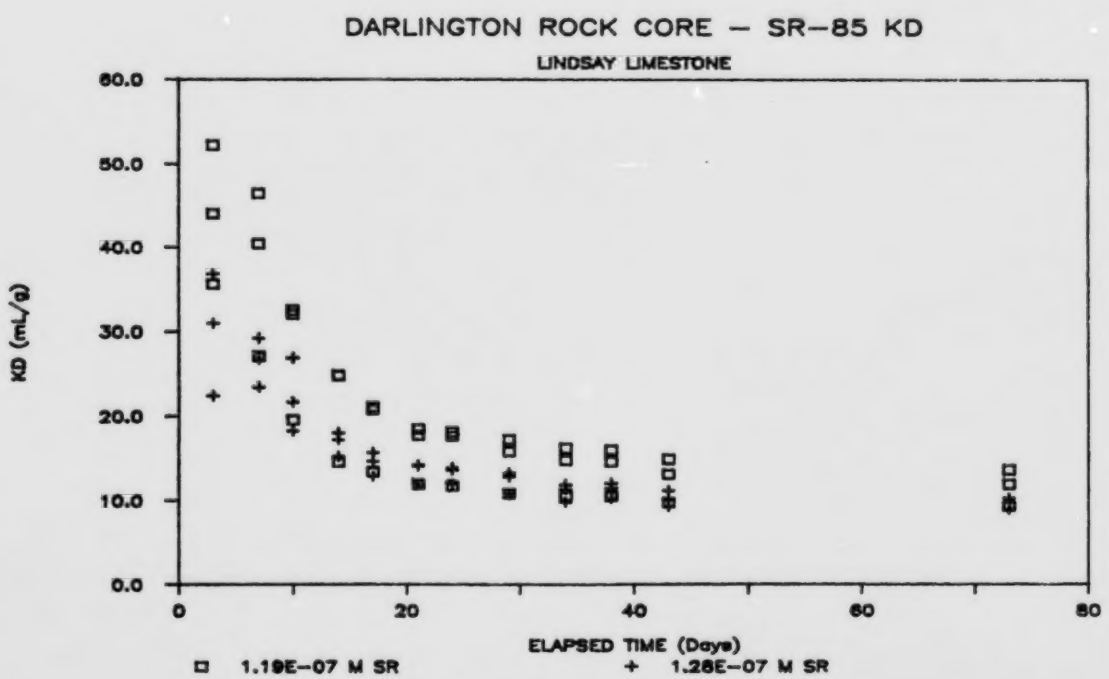


FIGURE 9

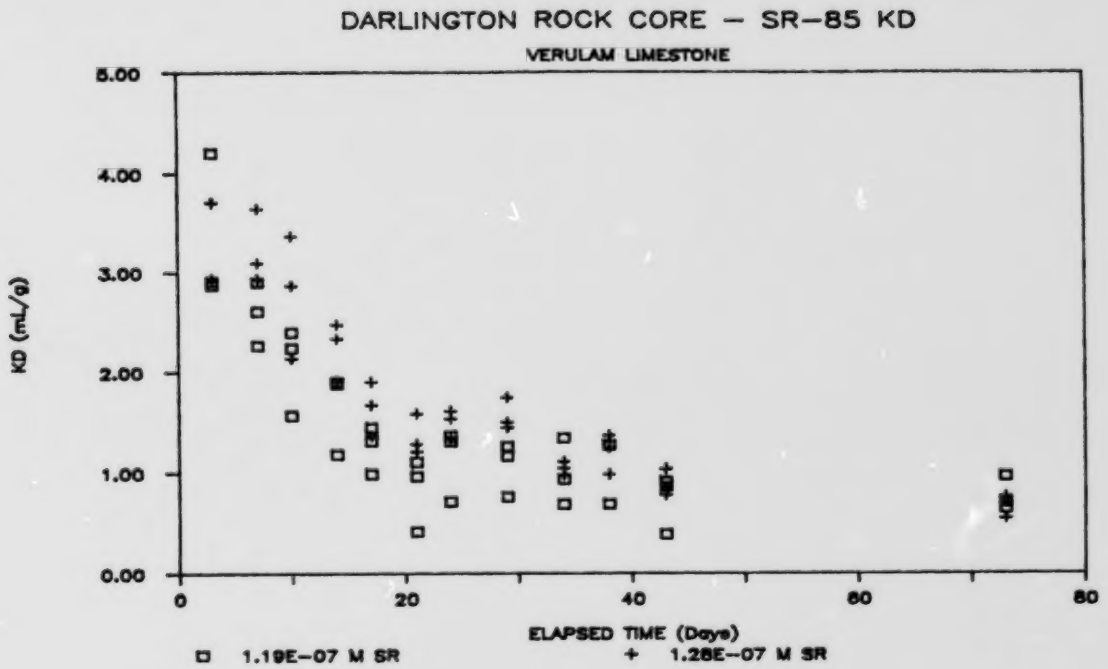


FIGURE 10

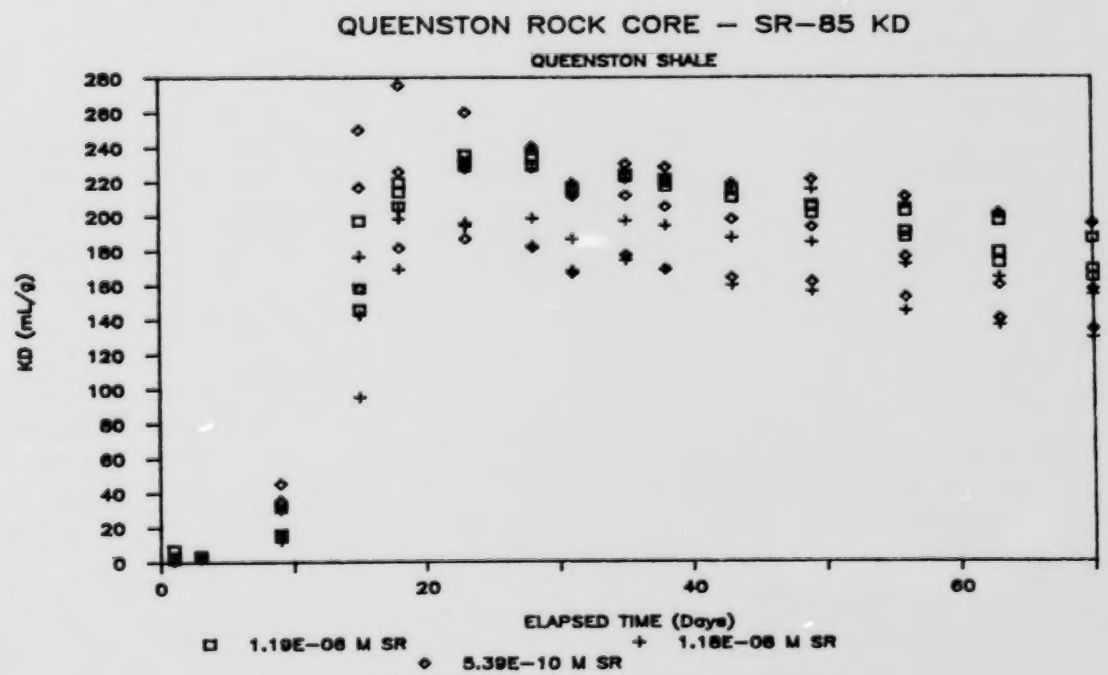


FIGURE 11

sorption and matrix diffusion, until ion-exchange equilibria is attained throughout the rock slab.

The length of time to reach equilibrium is a function of the magnitude of the effective matrix diffusion coefficient (which is dependent on the Kd value) and disc dimensions. For example, the time for equilibrium for the Gull River core was 10 days while the Precambrian core took over 30 days to reach equilibrium, even though both cores were of roughly the same size. The measured Kd values for the Precambrian core however, was ~2.5 times larger than that obtained for the Gull River samples (average Kd's being 2.97 $mL.g^{-1}$ and 1.13 $mL.g^{-1}$ respectively). Similarly the relatively short time to equilibrium of the Lindsay Limestone sample from Darlington GS (20 d) compared to samples from the same formation at Lakeview GS (>40 d) is directly a function of the disc thickness used in the batch tests; the average thicknesses being 1.15 mm and 2.56 mm for the Darlington and Lakeview samples respectively.

The distribution coefficients (Kd) range from a low of 0.96 $mL.g^{-1}$ for the Lower Verulam Limestone to a high of 169 $mL.g^{-1}$ for the Queenston Shale (Table 2). These values are well within the range of Sr distribution coefficients reported in the literature for similar rock types (Table 3). The relatively high value of 169 $mL.g^{-1}$ reflects the clay mineralogical make-up of the Queenston Shale. Clay minerals have much higher cation-exchange capacities (CEC) than most other minerals and are therefore more likely to result in higher Kd values for cationic solutes. Although the Georgian Bay Shale has, on average, approximately the same percentage of clay minerals as found in the Queenston Formation (~60%: Guillet, 1977), the measured Kd's obtained for samples from this formation were on the order of 29 $mL.g^{-1}$. Typically, samples of Georgian Bay Shale have been found to contain little or no expanding-layer clay minerals. The Queenston Shale, on the other hand, generally contains minor quantities of expanding-layer clays (Guillet, 1977). These types of clay minerals (eg. montmorillonite, vermiculite, etc.) generally have much higher CEC's than other clay minerals (Lerman, 1979).

TABLE 3

COMPARISON OF LITERATURE
STRONTIUM AND CESIUM DISTRIBUTION COEFFICIENTS

Rock Type	Reference	Distribution Coefficient			
		Strontium		Cesium	
		Kf ($mL.cm^{-2}$)	Kd ($mL.g^{-1}$)	Kf ($mL.cm^{-2}$)	Kd ($mL.g^{-1}$)
Shale	This study	11.8	29-169	391	687
	Erdal et al, 1979 b		51-57		4090-4970
	Brandstetter et al 1979		78-108		
	McKinley & West, 1982		43-115		695-1199
Limestone	This study	0.16-5.2	.96-11.7	60-237	191-698
	Meyer, 1978		6.2		300-490
(Dolomite)	Lynch & Dosch, 1981				650
Granite	This study	0.97	2.97	28	89
	Brandstetter, et al 1979		6.5		1100
	Vandergraaf & Abry, 1982	0.38-0.58		2.7-3.3	
	Skagius & Neretnieks, 1982	0.89-6.9		1.1-3.0	
	Erdal et al, 1979 a		16		320

The Kd results obtained for the two Lindsay Limestone samples (Darlington and Lakeview) are in good agreement (11.7 $mL.g^{-1}$ and 10.5 $mL.g^{-1}$ respectively) suggesting that the unit may be fairly uniform spatially (laterally) with respect to its Sr retardation capabilities. However, this is based on the analysis of only two samples, more work would be required to adequately determine the spatial variability of the formation's retardation capacity.

3.1.2 Cesium Sorption Results

A summary of the results of the equilibrium batch experiments for cesium are presented in Table 4. The corresponding experimental data are listed in Appendix B. As in the case of Sr, the values given represent the mean and standard deviation of individually measured Kd's corresponding to the horizontal segment of the distribution function. Graphical representation of the results are provided in Figures 12 to 17. The average Cs Kd values ranged from 89 $mL.g^{-1}$ for the Precambrian samples to 2674 $mL.g^{-1}$ for the Shadow Lake Sandstone. As was found with strontium, the results for the Cs batch experiments are similar to those previously reported (Table 3).

In general, the replicate analysis are in fairly good agreement with increased scatter of data points occurring with increasing Kd values. This increase in scatter is a direct result of counting statistics. Low total counts, which occur at low solution tracer concentrations (either in the initial solution or after equilibration ie. high Kd values), have larger standard deviations, resulting in greater uncertainty in the calculated Kd value. The effect of counting statistics is demonstrated in the Gull River Limestone results (Fig. 14). For the 1.3×10^{-11} M ^{137}Cs concentration, a substantial amount of scatter is observed in the replicates between 10 and 40 days. During this time frame, 1 mL of supernatant solution was counted. Since a large proportion of the Cs had been removed from the solution phase (adsorbed on the solid phase), the cpm values obtained were near background levels. Once the volume of solution counted was increased (after the 40 d elapsed time), the scatter in data points was reduced significantly.

TABLE 4

Cs DISTRIBUTION COEFFICIENTS

Sample	Kf ($mL.cm^{-2}$)	Kd ($mL.g^{-1}$)
Lakeview Core		
Georgian Bay Shale	391.1 ± 56.0	686.5 ± 67.5
Lindsay Limestone	237.5 ± 123.7	698.1 ± 190.8
Gull River Limestone	60.6 ± 10.4	191.6 ± 32.7
Shadow Lake Sandstone	945.2 ± 208.7	3673.8 ± 701.3
Precambrian Granitic Gneiss	28.3 ± 2.9	88.6 ± 10.3
Chippawa Core		
Queenston Shale	N/A	2046

N/A surface area not available

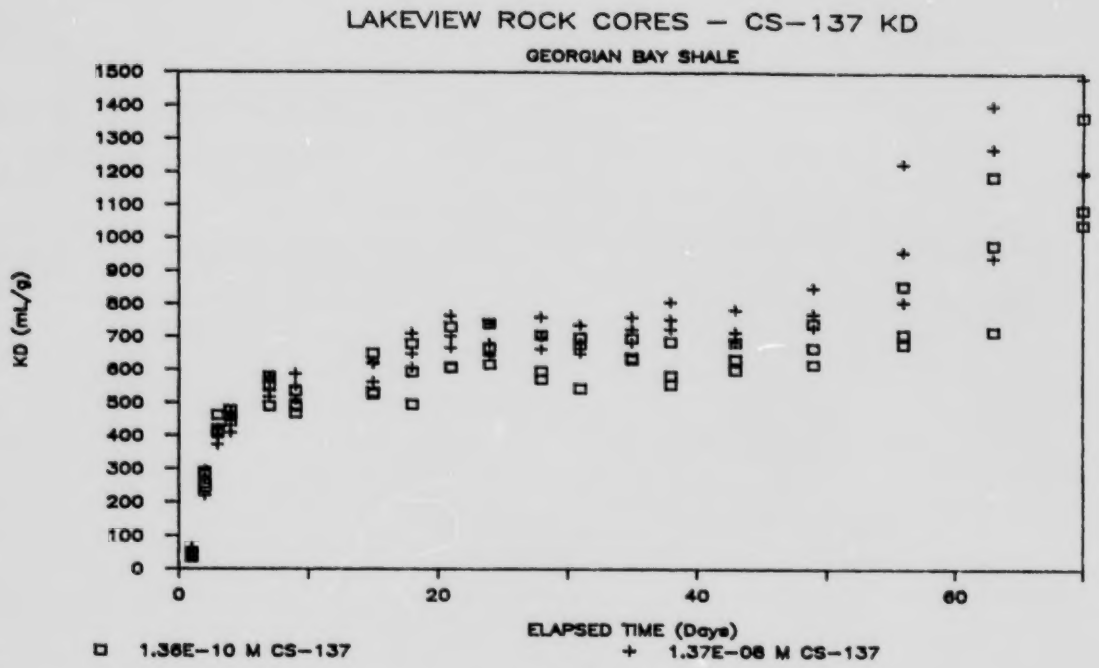


FIGURE 12

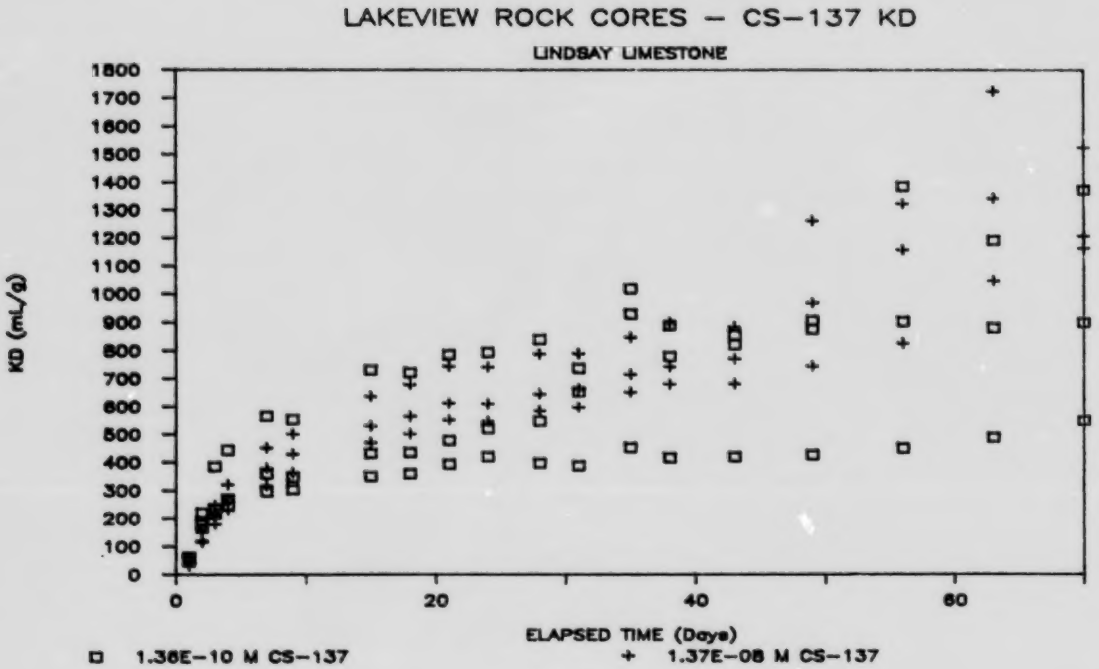


FIGURE 13

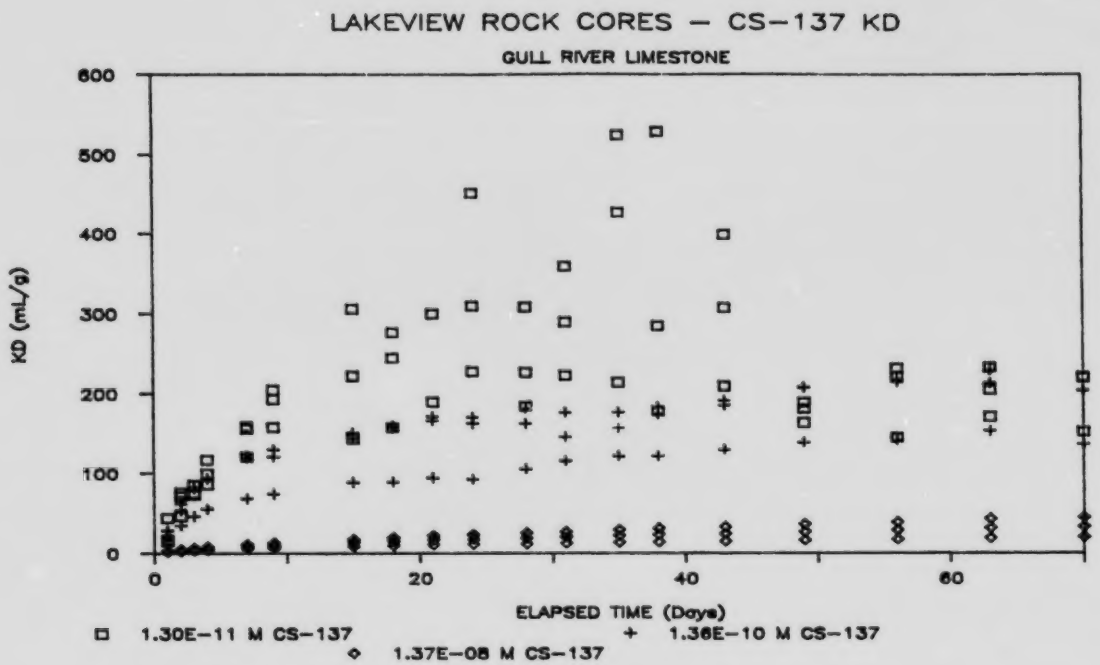


FIGURE 14

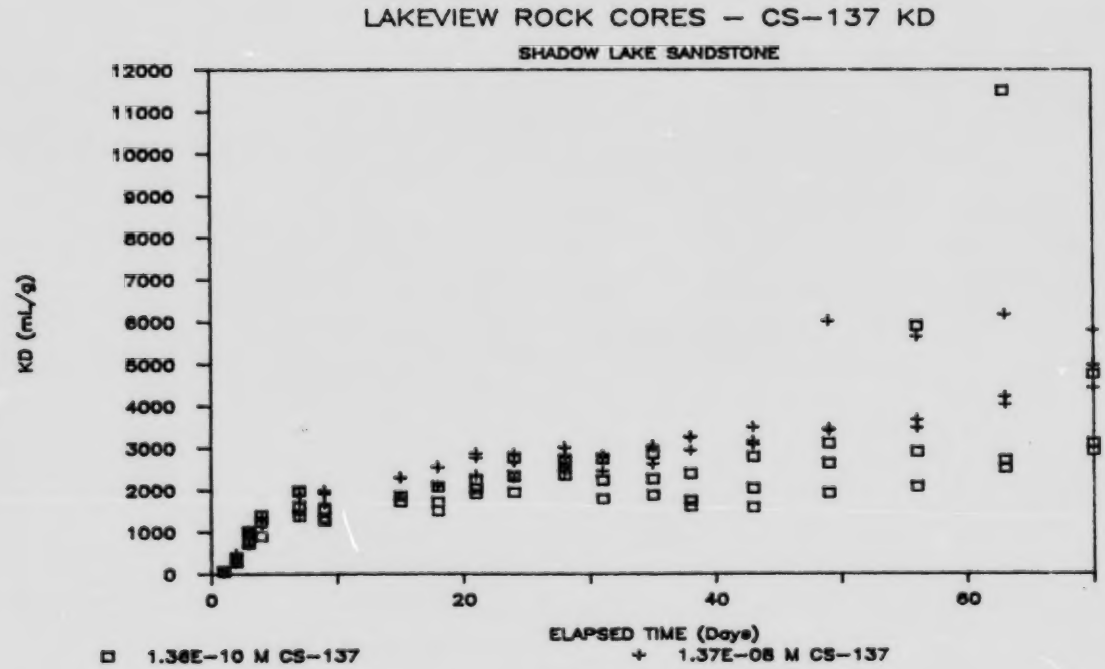


FIGURE 15

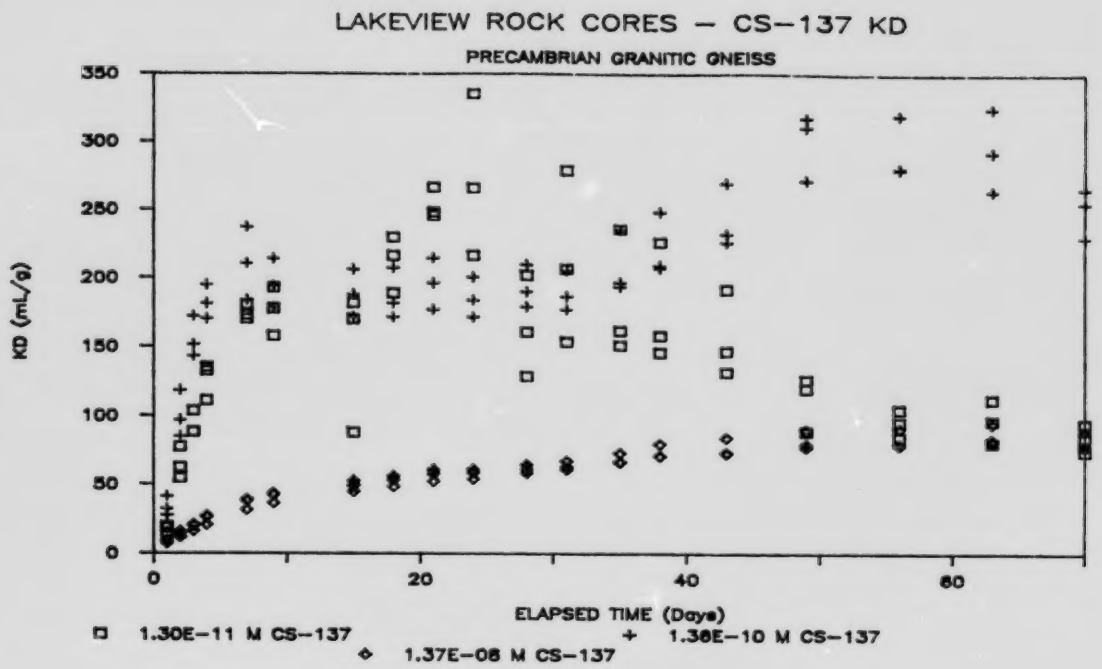


FIGURE 16

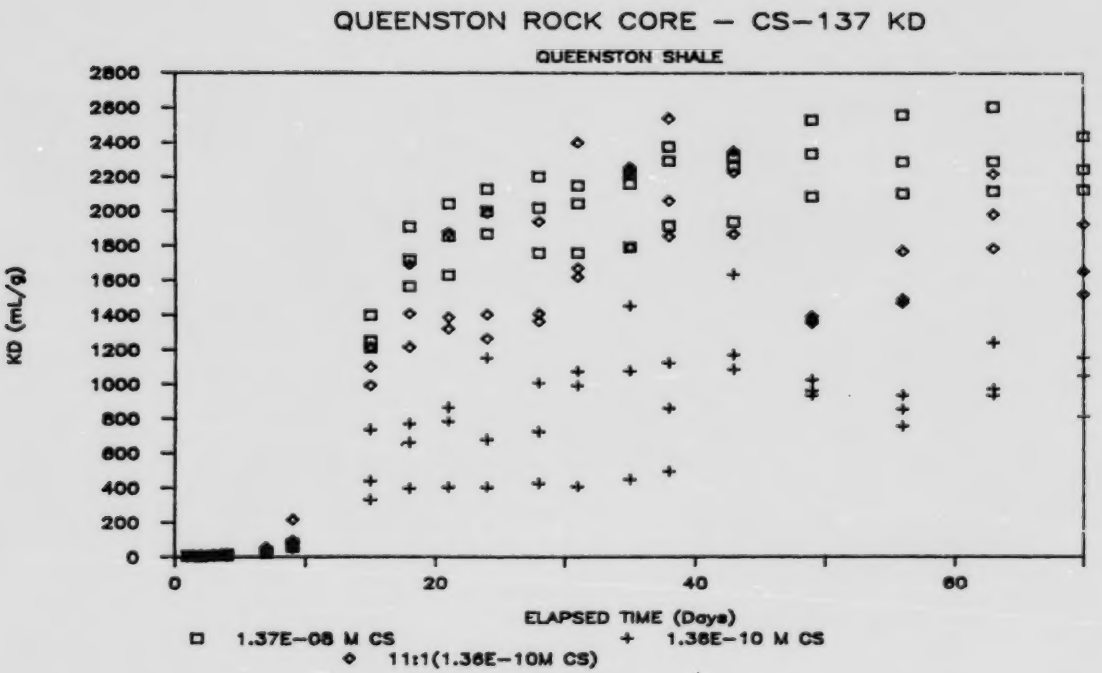


FIGURE 17

Several of the rock samples exhibited an increase in both replicate variability and Kd values (average of triplicate results) after ~40 days of equilibration. The reason for this shift is not clear, however, it may be a result of surface weathering. Brandstetter et al., (1979), in their research on the adsorption of radionuclides by geologic media, also noted a gradual increase in Kd values over time. They postulated the formation of weathering products (clays, zeolites) which have higher CEC values than the primary constituents of the rock. Subsequent comparison of artificially weathered rock samples (6 months at elevated temperatures) showed no apparent difference in measured Sr and Cs Kd values for granite, however, weathered argillite (shale) sorbed ^{137}Cs significantly more than unweathered argillite (13000 $mL.g^{-1}$ versus 2400 $mL.g^{-1}$ respectively). An opposite, and not nearly as dramatic, trend was observed for Sr, where the unweathered argillite had a Sr Kd of 108 $mL.g^{-1}$, weathering the samples decreased the distribution coefficient to 78 $mL.g^{-1}$. However, the cause of the observed shift in this study, in which values began to increase suddenly after a period of being numerically stable, is not clear and those data points were not included in the calculation of the average distribution coefficients listed in Table 4.

The results of the Queenston Shale batch experiment showed significant variability among replicate samples. In the initial set of samples, the Kd's obtained for the 1.36×10^{-10} M ^{137}Cs concentration were lower than those for the 1.37×10^{-8} M Cs concentration; this is opposite to what would normally be anticipated. A repeat of the lower concentration batch tests produced more reasonable results, however the variation among the point values still remained large. The Cs distribution coefficient of 2046 $mL.g^{-1}$ reported in Table 4 reflects the averaging of the individual Kd measurements, at equilibrium, of the 1.37×10^{-8} M and the second replica of the 1.36×10^{-10} M ^{137}Cs experiments.

The difference in the Kd's reported for the Queenston and Georgian Bay Shale Formations, can again be related to mineralogical differences. The Georgian Bay Shale typically contains less illite and more chlorite than does the Queenston Formation. Illite, a member of the mica group, is comprised of

altered pyrophyllite layers (a three-layer structure with one Al atom substituted for 1 out of every 4 silicons in each tetrahedra layer), linked together by K atoms (Mason and Berry, 1968). Cesium ions, being of similar charge and size to K^+, are therefore preferentially sorbed by illite at broken bond (frayed edge) locations.

3.2 Tortuosity Factors/Diffusion Coefficients

The experimental diffusion profiles for ^3H and ^{36}Cl are shown in both tabular and graphic form in Appendix C. Examples of ^3H and ^{36}Cl concentration profiles for Lindsay Limestone (Figures 18 and 19) and Shadow Lake Sandstone (Figures 20 and 21) are presented. Diffusion coefficients were obtained by linear regression of the $CV\ell/C_0A$ and time data, once linearity had been achieved (visual inspection). A summary of the diffusion results are given in Table 5 along with the measured porosities (n) and calculated bulk densities (ρ_b) for each formation.

The measured diffusion coefficients obtained for samples of Precambrian granite (1.7×10^{-9} and 3.8×10^{-9} $cm^2.s^{-1}$ for ^{36}Cl; 3.45×10^{-9} and 3.5×10^{-9} $cm^2.s^{-1}$ for ^3H) compare well with those for granites reported by other researchers. For example, Bradbury et al (1982) measured diffusion coefficients on rock samples from four granitic formations in the United Kingdom. They report iodide (I^-) diffusion coefficients in the range of 1.4×10^{-8} to 6.4×10^{-9} $cm^2.s^{-1}$ for Ossian granite, 2.5 to 3.2×10^{-9} $cm^2.s^{-1}$ for samples from the Cornish Carnmellis formation, and approximately 4×10^{-9} $cm^2.s^{-1}$ and 2.8×10^{-9} $cm^2.s^{-1}$ for rock samples of Scottish Lowland and Skene Complex granite respectively. Although iodide was used as a tracer rather than chloride, because of the similarity in free-solution diffusion coefficients (2.00×10^{-5} $cm^2.s^{-1}$ and 2.03×10^{-5} $cm^2.s^{-1}$ at 25°C respectively) and anionic nature, one could anticipate comparable experimental results, as indeed were observed.

Skagius and Neretnicks (1982) measured I^- diffusion coefficients in the range of 7.4 to 8.4×10^{-9} $cm^2.s^{-1}$ for samples of Finnsjo granite, 1.2 to 1.3 x

$10^{-8} cm^2.s^{-1}$ for Stripa granite cores and ^3H diffusion coefficients of 1.3 to 1.8 x 10^{-9} $cm^2.s^{-1}$ for the Finnsjö granite. Subsequent work (Skagius and Neretnieks, 1986) on rock samples of Gideå gneiss resulted in I^- diffusion coefficients in the range of 9 x 10^{-10} to 1.3 x 10^{-9} $cm^2.s^{-1}$.

Little information was found concerning the magnitude of diffusion coefficients in sedimentary rock matrices. Feenstra et al, (1984) measured chloride diffusion coefficients on 11 core samples of sandstone from the Athabasca Formation of northern Saskatchewan. The effective diffusion coefficients obtained from their laboratory experiments varied from 3.4 x 10^{-8} to 3.2 x 10^{-7} $cm^2.^{-1}$. The ^{36}Cl diffusion results of this study for the Shadow Lake Sandstone were near the lower limit of their range, ~4.4 x 10^{-8} $cm^2.s^{-1}$. It should also be noted that the sandstone samples tested by Feenstra et al had a slightly higher porosity (~9%) compared to the Shadow Lake Sandstone (~7%) which would account for the slightly higher range diffusion coefficients they reported for a sandstone.

From the above review, it therefore appears that the method described in this report for the measurement of diffusion coefficients in consolidated porous media does provide comparable results to those obtained by other researchers.

The tortuosity factors (τ) were determined from the results of the chloride and tritium diffusion experiments. The factors were calculated for each sample disc as the ratio of the experimental diffusion coefficient (D_m), to the molecular diffusion coefficient of the solute in free solution (D_0) according to:

$$D_m = D_0\tau \qquad (7)$$

The values of D_0 used in the calculation were 2.03 x 10^{-5} $cm^2.s^{-1}$ for ^{36}Cl and 9.31 x 10^{-5} $cm^2.s^{-1}$ for ^3H. The tortuosity factors obtained are listed in Table 5.

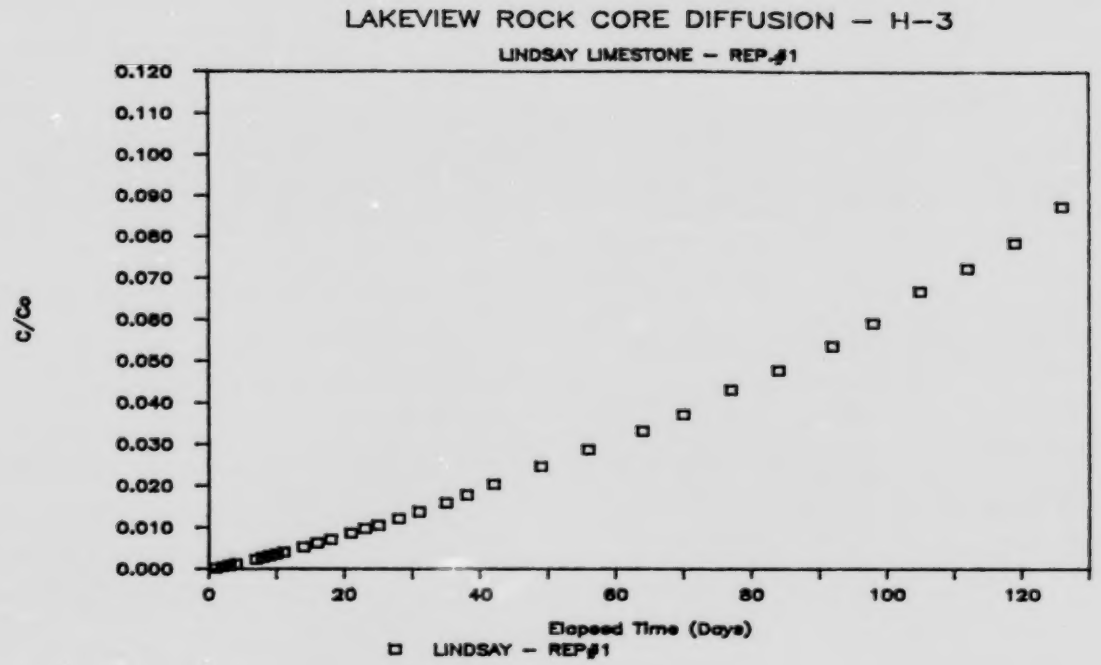


FIGURE 18

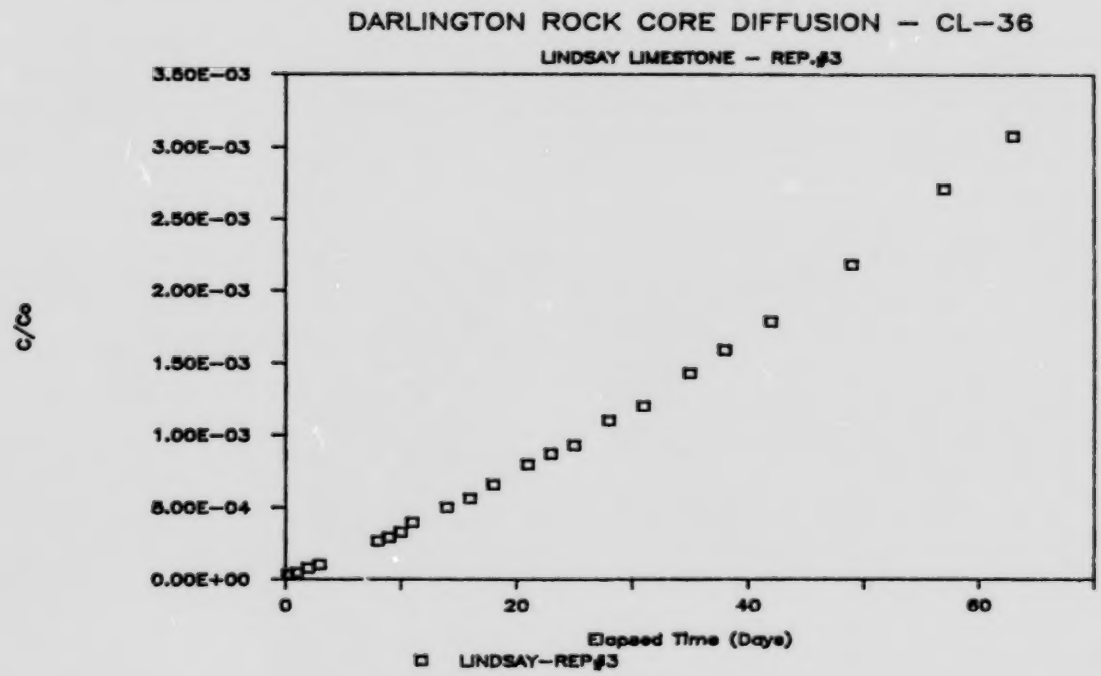


FIGURE 19

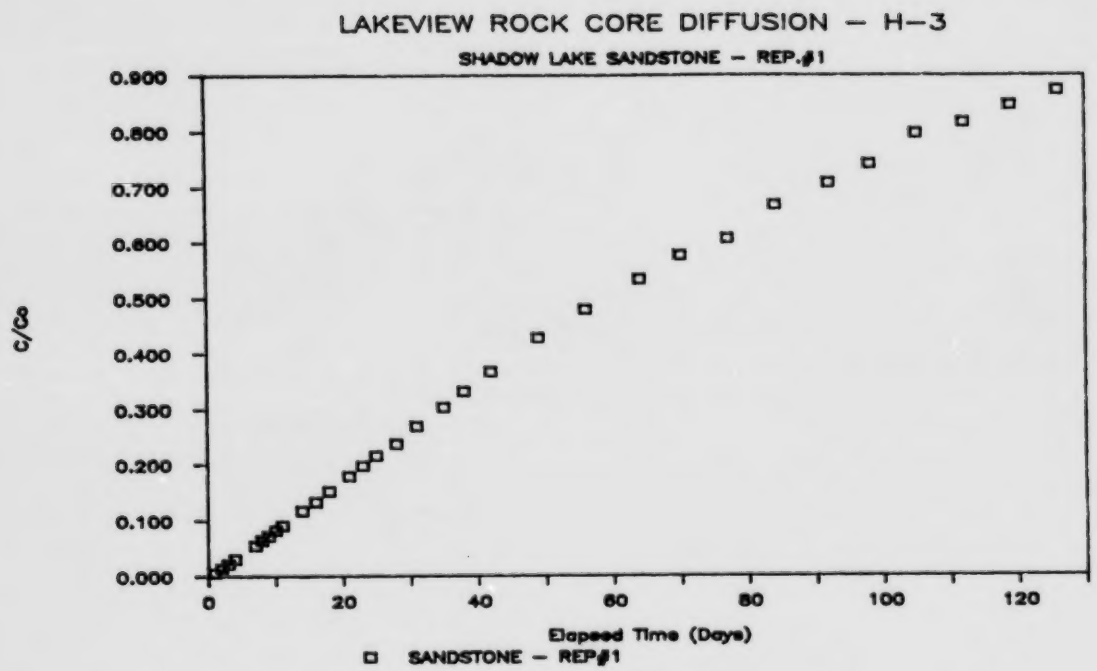


FIGURE 20

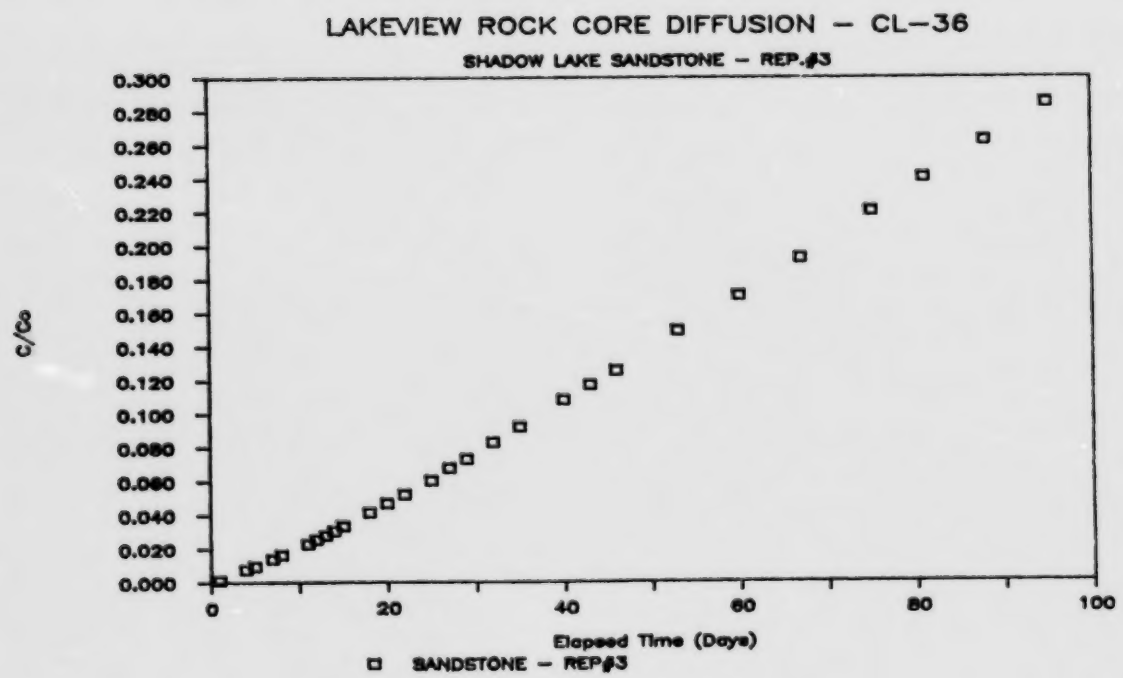


FIGURE 21

TABLE 5

SUMMARY OF DIFFUSION COEFFICIENTS AND TORTUOSITY FACTORS

Location	Formation	Bulk Density	Porosity	Sample	Diffusion Coefficient ($cm^2 s^{-1}$) $^3H \times 10^9$	Diffusion Coefficient ($cm^2 s^{-1}$) $^{36}Cl \times 10^{10}$	Tortuosity ($\tau \times 10^5$) ^3H	Tortuosity ($\tau \times 10^5$) ^{36}Cl
Lakeview	Georgian Bay Shale			1	13.89		14.92	
				2	15.86		17.03	
	Lindsay Limestone	2.62	.0162	1	6.85		7.36	
				2	9.11		9.78	
	Gull River Limestone	2.67	.0172	1	15.74		16.91	
				2	12.50		13.43	
	Shadow Lake Sandstone	2.3-2.55	.0744	1	125.00		134.26	
				2	131.94		141.72	
				3		450.23		222.89
				4		437.5		216.58
	Precambrian Granitic Gneiss	2.68-2.72	.0125	1	3.45		3.71	
				2	3.51		3.77	
				3		37.62		18.62
				4		17.36		8.59
Darlington	Lindsay Limestone	2.58	.0116	1*	22.34		23.99	
				2		7.14		3.54
				3	8.11	5.10/4.65**	8.71	2.53/2.30**
				4	8.19		8.80	
				5	4.46		4.79	
				6		5.76		2.85
	Lower Verulam Limestone	2.61	.012	1		7.40		3.66
				2	2.41		2.59	
				3	3.22	7.37	3.46	3.65
				4	2.48		2.66	
				5	1.89		2.03	
				6		6.59		3.26

* Sample disc fractured
** NaCl solution

In general, both the chloride and tritium tortuosity values for similar formation materials are in good agreement. Therefore, for the purposes of the model simulations in section 3.3, the mean tortuosity value of the replicates was used. The exception was Darlington-Lindsay Limestone Rp 1. This was omitted due to the development of a fracture in the disc which resulted in an anomalously high tortuosity value of 2.4×10^{-4} when compared to the average τ value of 5.2×10^{-5} (^{3}H plus ^{36}Cl data).

The measured tortuosity factors (^{3}H) range from a low of $\sim 2.7 \times 10^{-5}$ for the Lower Verulam Limestone to a high value of 1.4×10^{-3} for the Shadow Lake Sandstone. As was observed with the batch results, τ values obtained from the diffusion experiments conducted on samples of Lindsay Limestone from the Darlington and Lakeview GS sites were in excellent agreement giving an average of 7.9×10^{-5} ($\pm 1.9 \times 10^{-5}$).

3.3 Analytical Simulations

In order to illustrate the effect of matrix diffusion and geochemical retardation on contaminant migration, simulations were conducted using an analytical solution describing contaminant transport in discrete fractures. The program used was CRACKD0 (Sudicky, 1986) which is based on the analytical solution developed by Tang et al., (1981). This solution incorporates advective flow along the fracture and diffusion of the solute into the porous matrix with radioactive decay and geochemical retardation and is given by:

$$C/Co = 0 \qquad T'<0 \quad (8a)$$

$$C/Co = 1/2 \exp\left(-\frac{\lambda Rz}{V}\right) \exp\left(-\frac{\lambda^{1/2}Rz}{VA}\right) \operatorname{erfc}\left(\frac{Z}{2VAT'} - \lambda^{1/2}T'\right) + \quad (8b)$$

$$+ \exp\left(\frac{\lambda^{1/2}Rz}{VA}\right) \operatorname{erfc}\left(\frac{z}{2VAT'} + \lambda^{1/2}T'\right) \qquad T'>0$$

where

$T' = (t-Rz/V)^{1/2}$

$A = bR/[n(R'D_m)^{1/2}]$

t = time (T)

R = fracture surface retardation factor

$= 1+ Kf/b$

R' = matrix retardation factor

$= 1 + p_b/n\ Kd$

$2b$ = fracture aperture (L)

z = co-ordinate along the fracture axis (L)

x = co-ordinate perpendicular to the fracture axis (L)

p_b = bulk density (M/L^3)

n = matrix porosity

D_m = effective matrix diffusion coefficient (L^2/T)

V = ground water velocity in the fracture (L/T)

λ = radionuclide decay constant (1/T)

Simulations for tritium and ^{90}Sr migration in two formations, Shadow Lake Sandstone and Verulam Limestone, were conducted. These formations were chosen as they represent the extreme range of tortuosity values measured (Verulam - 3.04×10^{-5}; Shadow Lake - 1.79×10^{-3}). These two formations

also exhibited a difference in measured Kd values by a factor of approximately 30 (0.96 $mL.g^{-1}$ and 37.3 $mL.g^{-1}$ for the Verulam and Shadow Lake Formations respectively). This will also serve to illustrate the effect of sorption parameters on contaminant migration in fractured porous media.

All simulations were conducted using a fracture aperture (2b) of 100 μm and a fracture flow velocity of 0.1 $m.d^{-1}$. As indicated by equations (8), longitudinal dispersion along the fracture axis was neglected. Effective matrix diffusion coefficients (D_m) required for the model were calculated according to equation (7) using D_0 values of 9.31×10^{-5} $cm^2.s^{-1}$ and 7.94×10^{-5} $cm^2.s^{-1}$ for tritium and ^{90}Sr respectively.

The effect of matrix diffusion on contaminant migration of a nonreactive solute in fractured sandstone is illustrated in Figure 22 for tritium. When diffusion into the matrix is ignored, the contaminant front, as indicated by the C/C0 = 0.01 concentration profile, would have migrated distances of 10 m, 100 m and 1000 m from a continuous source input after elapsed times of 100, 1000 and 10,000 days. If matrix diffusion is incorporated into the model, the migration distances are significantly reduced to 2.1 m, 6.9 m and 19 m for the respective time periods. The effect of reducing the matrix tortuosity value by two orders of magnitude can be seen by comparing the migration distances estimated for the Shadow Lake Sandstone with those for Verulam Limestone (Figures 22 and 23 respectively). After an elapsed time of 100 days, no difference in transport distance was predicted, ie. simulations with and without matrix diffusion both predict the C/C0 = 0.01 front to migrate ~10 m. However, even for very tight porous materials (low tortuosity values), the effect of matrix diffusion does become significant as the time frame considered is increased. For example, the predicted transport distances were reduced by 10% (from 100 m to 90.8 m) and 50% (from 1000 m to 528 m) after 1000 and 10,000 days.

The effect of geochemical retardation on the extent of contaminant migration in fractured media is even more dramatic, as shown in Figures 24 and 25. By incorporating the measured Sr Kd value for Verulam Limestone of 0.96 $mL.g^{-1}$

FIGURE 22

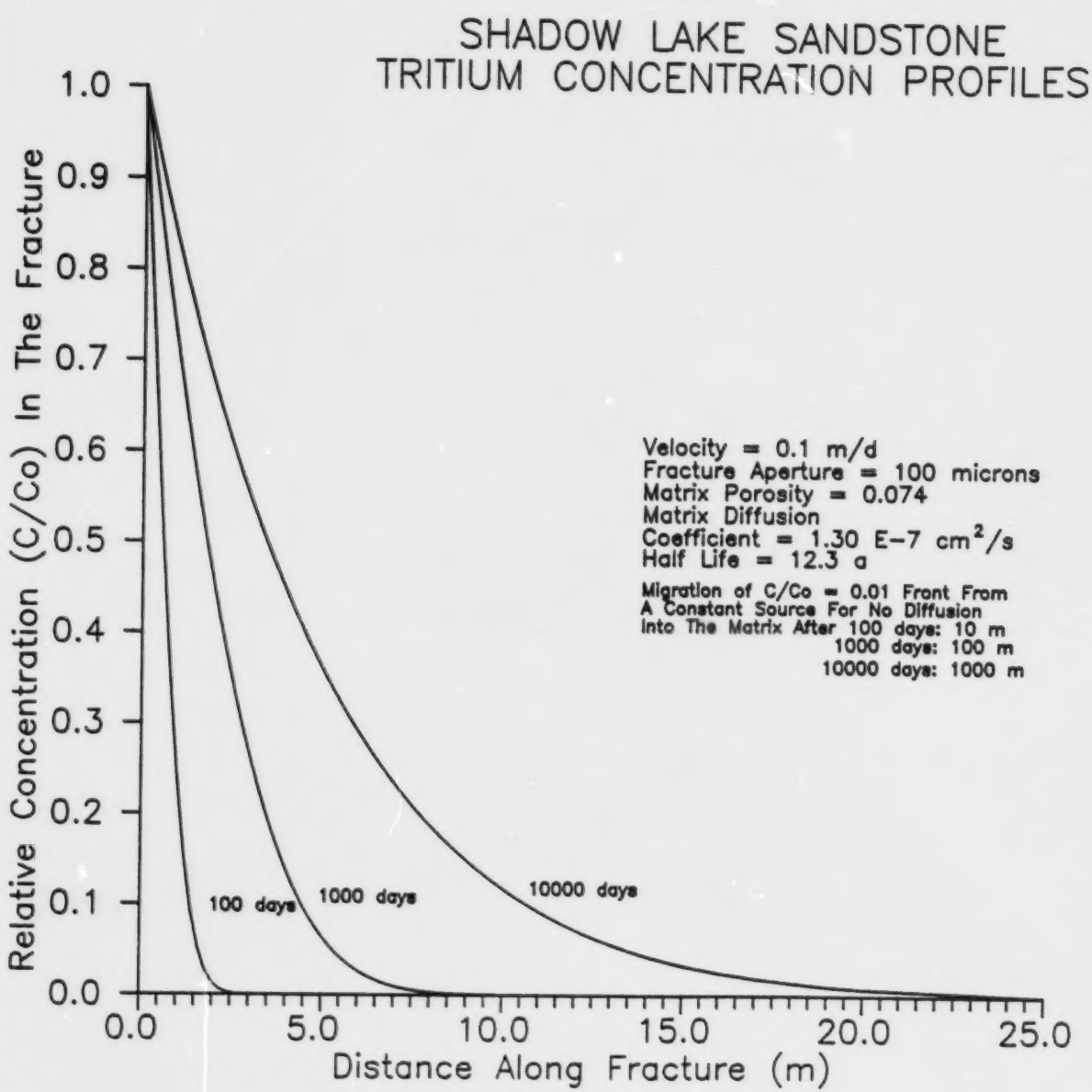

SHADOW LAKE SANDSTONE
TRITIUM CONCENTRATION PROFILES
Relative Concentration (C/Co) In The Fracture
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
Distance Along Fracture (m)
100 days
1000 days
10000 days
Velocity = 0.1 m/d
Fracture Aperture = 100 microns
Matrix Porosity = 0.074
Matrix Diffusion
Coefficient = 1.30 E-7 cm²/s
Half Life = 12.3 a
Migration of C/Co = 0.01 Front From
A Constant Source For No Diffusion
Into The Matrix After 100 days: 10 m
1000 days: 100 m
10000 days: 1000 m

FIGURE 23

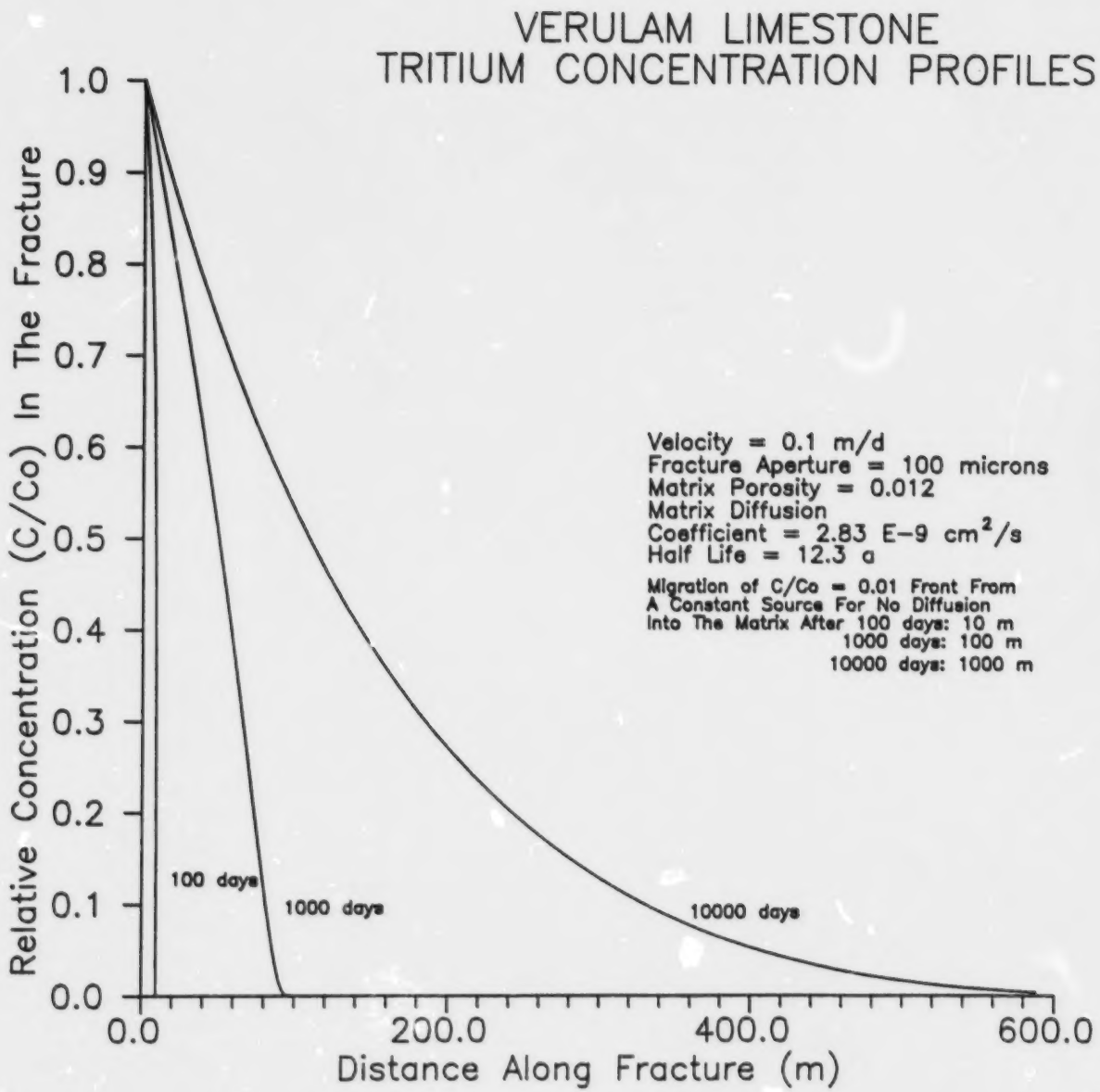

VERULAM LIMESTONE
TRITIUM CONCENTRATION PROFILES
Relative Concentration (C/Co) In The Fracture
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0
200.0
400.0
600.0
Distance Along Fracture (m)
100 days
1000 days
10000 days
Velocity = 0.1 m/d
Fracture Aperture = 100 microns
Matrix Porosity = 0.012
Matrix Diffusion
Coefficient = 2.83 E-9 cm²/s
Half Life = 12.3 a
Migration of C/Co = 0.01 Front From
A Constant Source For No Diffusion
Into The Matrix After 100 days: 10 m
1000 days: 100 m
10000 days: 1000 m

FIGURE 24

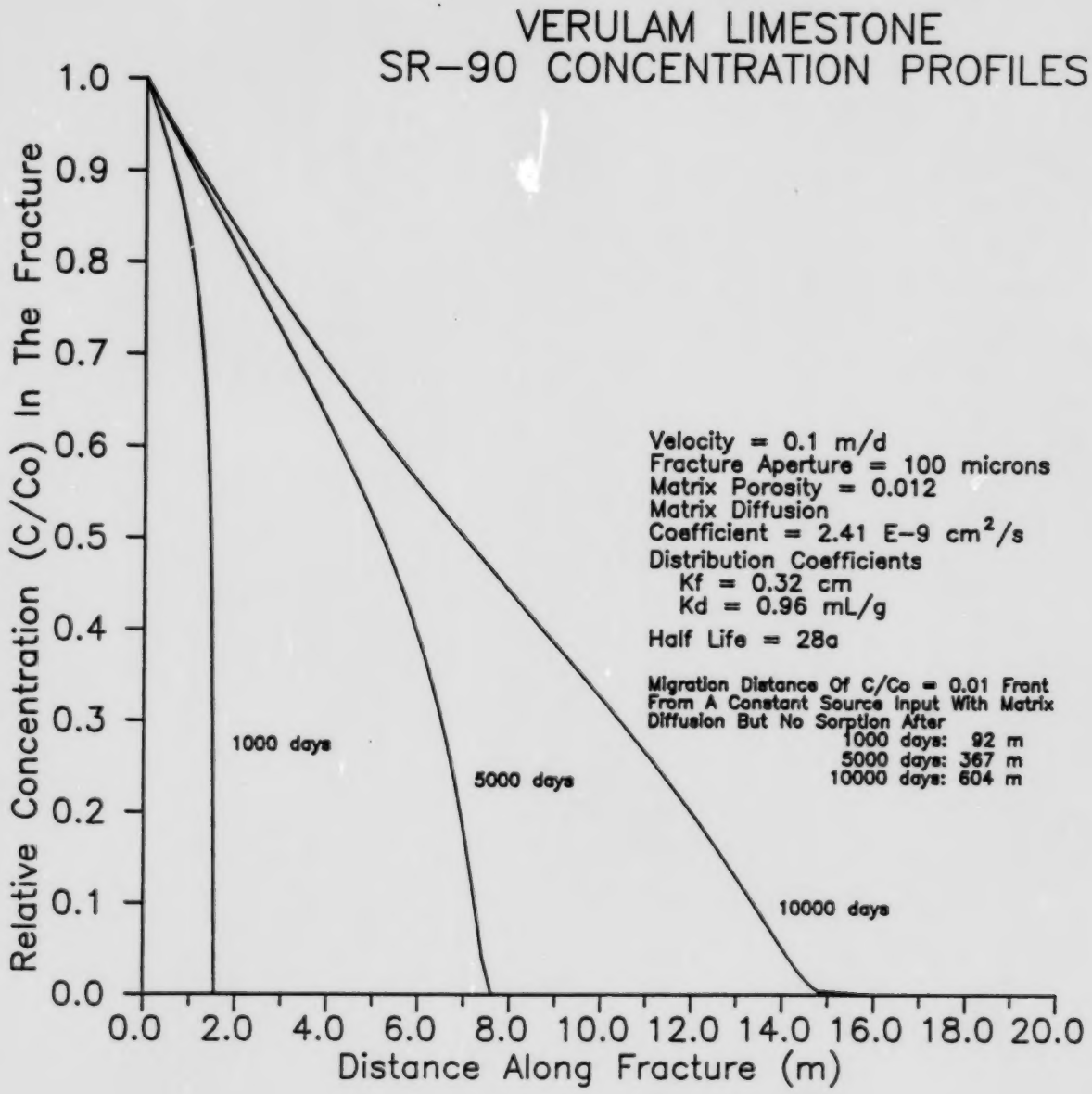
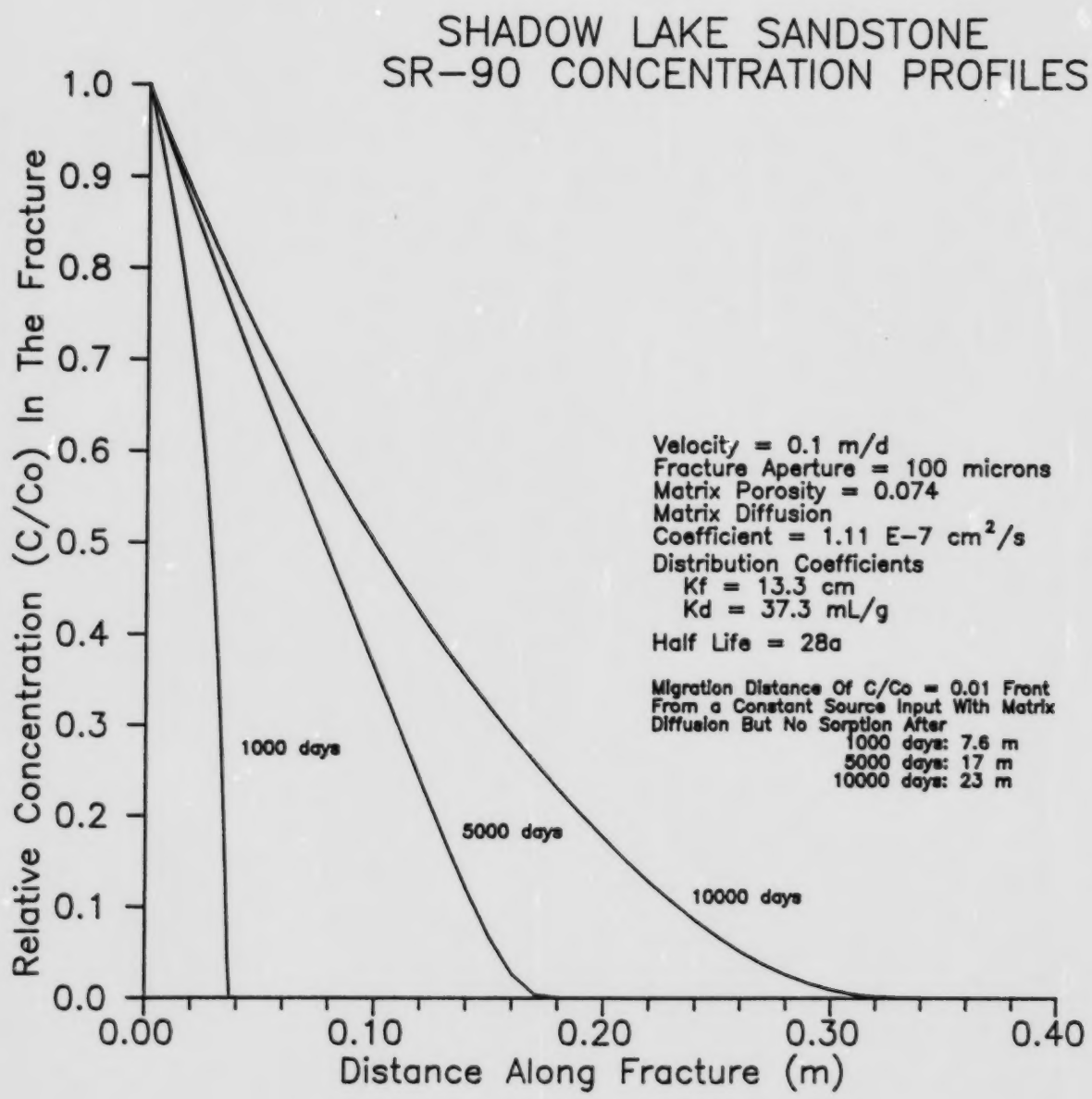

VERULAM LIMESTONE
SR-90 CONCENTRATION PROFILES
Relative Concentration (C/Co) In The Fracture
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0
Distance Along Fracture (m)
1000 days
5000 days
10000 days
Velocity = 0.1 m/d
Fracture Aperture = 100 microns
Matrix Porosity = 0.012
Matrix Diffusion
Coefficient = 2.41 E-9 cm²/s
Distribution Coefficients
Kf = 0.32 cm
Kd = 0.96 mL/g
Half Life = 28a
Migration Distance Of C/Co = 0.01 Front From A Constant Source Input With Matrix Diffusion But No Sorption After
1000 days: 92 m
5000 days: 367 m
10000 days: 604 m

FIGURE 25


SHADOW LAKE SANDSTONE
SR-90 CONCENTRATION PROFILES
Relative Concentration (C/Co) In The Fracture
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.00
0.10
0.20
0.30
0.40
Distance Along Fracture (m)
1000 days
5000 days
10000 days
Velocity = 0.1 m/d
Fracture Aperture = 100 microns
Matrix Porosity = 0.074
Matrix Diffusion
Coefficient = 1.11 E-7 cm²/s
Distribution Coefficients
Kf = 13.3 cm
Kd = 37.3 mL/g
Half Life = 28a
Migration Distance Of C/Co = 0.01 Front
From a Constant Source Input With Matrix
Diffusion But No Sorption After
1000 days: 7.6 m
5000 days: 17 m
10000 days: 23 m

in addition to a matrix diffusion coefficient of 2.41 x 10^{-9} $cm^2.s^{-1}$, a predicted contaminant front for ^{90}Sr would migrate 1.53 m after 1000 days, 7.51 m after 5000 days and only 14.6 m after 10,000 days (~1 half life) compared to 92 m, 367 m and 604 m respectively when retardation is ignored (Figure 24). For the Shadow Lake Sandstone, for which a Sr Kd value of 37.7 $mL.g^{-1}$ was obtained, the transport distances calculated after 1000, 5000 and 10,000 days were 0.037 m, 0.165 m and 0.3 m respectively (Figure 25). This is compared to the case of matrix diffusion only where the C/C0 concentration front would have migrated approximately 7.6 m, 17 m and 23 m for similar time periods.

The results of the above simulations indicate that the migration velocities of a radionuclide such as ^{90}Sr from a waste disposal site located in fractured rock formations studied would be significantly retarded relative to ground water flow rates. Due to the much higher adsorption coefficients observed for Cs relative to Sr, the penetration depth for ^{137}Cs would be substantially smaller than those of ^{90}Sr. The most favorable rock types would therefore be characterized by higher tortuosity factors and high distribution coefficients. It should be noted however, that even nonreactive contaminants will be significantly retarded with respect to fracture flow velocities due to the effect of matrix diffusion, and that this effect on the migration rate of contaminants would become more pronounced at low fracture flow velocities.

4.0 SUMMARY

1. Strontium distribution coefficients were determined for eight rock formations; two from Borehole UN-2 Darlington GS (Lindsay and Verulam Formations), five from Borehole OHD-1 Lakeview GS (Georgian Bay Shale, Lindsay Limestone, Gull River Limestone, Shadow Lake Sandstone and Precambrian Granitic Gneiss) and one from Chippawa, Ontario (Queenston Shale). The Sr Kd values range from 0.96 $mL.g^{-1}$ for the Lower Verulam Limestone to 169 $mL.g^{-1}$ for the Queenston Shale.

2. Cesium distribution coefficients were determined on samples from Lakeview GS and Chippawa, Ontario. The values ranged from 89 $mL.g^{-1}$ (Precambrian Granite) to 2674 $mL.g^{-1}$ (Shadow Lake Sandstone).

3. Chloride-36 and tritium diffusion experiments were conducted to determine tortuosity factors (τ) for the various rock formations studied (with the exception of the Queenston Shale). The results of these experiments indicated a slight difference in tortuosities calculated using the ^{3}H and ^{36}Cl diffusion profiles (generally by a factor of 1.5 to 3). However, considering the natural variability between the sample discs and the two order of magnitude variation in τ among the rock types, this difference was not considered excessive and for the purposes of the simulation studies, an average value for the tortuosity was used. The average tortuosity factors for the rock types ranged from a low of 3.04×10^{-5} (Verulam Limestone) to a high of 1.79×10^{-3} (Shadow Lake Sandstone).

4. Both the Sr Kd values and tortuosity factors determined for the Lindsay Limestone samples obtained from the Darlington and Lakeview GS sites were in good agreement suggesting the formation may be fairly uniform spatially (laterally) with respect to its physical and chemical characteristics.

5. The effectiveness of host rock to retard radionuclide migration is significantly enhanced by higher matrix adsorption values and increased tortuosity coefficients. However, the results of the model simulations indicate that even fractured rock masses characterized by low tortuosity factors and comparatively low geochemical retardation capabilities can be effective in retarding the migration of contaminants relative to ground water velocities in fracture pathways. Indeed, even nonreactive solutes will be retarded relative to fracture flow velocities due solely to the effect of diffusion from the fracture into the rock matrix, and, at low fracture flow rates, this can become significant, particularly when a time frame of hundreds or thousands of years is considered.

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Approved by:

T.W. Klym
Manager
Civil Research Department

Prepared by:

H.M. Johnston
Hydrogeologist
Rock Sciences Section

Reviewed by:

A.T. Jakubick
Acting Supervising Engineer
Rock Sciences Section

HMJ:km/sc

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APPENDIX A

STRONTIUM SORPTION RESULTS: RAW DATA

LAKEVIEW ROCK CORES - SR-85 KD

DAY #1 SOLUTION VOLUME- 100 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.77					
SR STANDARD #1	---	---	5.88E-08	39255.0					
1-1	36.60	13.785	5.88E-08	16819.1	2.5146E-08	8.0566E-06	2.1391E-05	3.657	9.708
1-2	36.00	11.857	5.88E-08	18384.6	2.7495E-08	7.6194E-06	2.3134E-05	3.163	9.603
1-3	37.54	16.333	5.88E-08	17349.4	2.5942E-08	7.6692E-06	1.7627E-05	3.374	7.755
2-1	35.53	11.035	5.88E-08	35742.7	5.3532E-08	1.2992E-06	4.1832E-06	0.277	0.892
2-2	35.53	10.983	5.88E-08	37213.2	5.5737E-08	7.5528E-07	2.4433E-06	0.155	0.500
2-3	35.56	10.923	5.88E-08	37122.5	5.5601E-08	7.8817E-07	2.5659E-06	0.162	0.527
3-1	35.58	11.150	5.88E-08	34913.0	5.2287E-08	1.6039E-06	5.1181E-06	0.350	1.117
3-2	35.92	12.106	5.88E-08	36192.9	5.4207E-08	1.1204E-06	3.3244E-06	0.236	0.700
3-3	35.89	11.947	5.88E-08	35681.5	5.3440E-08	1.3086E-06	3.9312E-06	0.279	0.840
4-1	36.44	12.626	5.88E-08	12516.2	1.8692E-08	9.6440E-06	2.7834E-05	5.888	16.994
4-2	36.63	13.190	5.88E-08	14178.9	2.1186E-08	8.9974E-06	2.4987E-05	4.847	13.460
4-3	36.43	12.666	5.88E-08	15139.6	2.2627E-08	8.7002E-06	2.5023E-05	4.388	12.622
5-1	35.53	11.008	5.88E-08	27191.9	4.0705E-08	4.4623E-06	1.4403E-05	1.251	4.038
5-2	35.53	10.891	5.88E-08	23589.5	3.5302E-08	5.7948E-06	1.8905E-05	1.873	6.112
5-3	35.49	10.885	5.88E-08	22953.5	3.4348E-08	6.0369E-06	1.9683E-05	2.006	6.540
SR STANDARD #2	---	---	8.73E-06	253509					
1-4	37.17	15.628	8.73E-06	111039	3.8228E-06	1.1568E-03	2.7513E-03	3.454	8.214
1-5	38.23	18.360	8.73E-06	119013	4.0974E-06	1.0618E-03	2.2108E-03	2.957	6.158
1-6	36.98	14.900	8.73E-06	108347	3.7300E-06	1.1847E-03	2.9403E-03	3.625	8.996
2-4	35.59	10.946	8.73E-06	241894	8.3299E-06	9.8494E-05	3.2024E-04	0.135	0.439
2-5	35.53	10.877	8.73E-06	241779	8.3260E-06	9.9637E-05	3.2547E-04	0.137	0.446
2-6	35.58	10.989	8.73E-06	242442	8.3488E-06	9.3873E-05	3.0394E-04	0.128	0.415
3-4	35.77	11.745	8.73E-06	226772	7.8091E-06	2.2559E-04	6.8703E-04	0.330	1.004
3-5	35.91	11.954	8.73E-06	229952	7.9186E-06	1.9798E-04	5.9474E-04	0.285	0.857
3-6	35.61	11.111	8.73E-06	232156	7.9945E-06	1.8097E-04	5.7999E-04	0.258	0.828
4-4	36.67	13.289	8.73E-06	91473.3	3.1488E-06	1.3336E-03	3.6799E-03	4.834	13.338
4-5	36.63	13.029	8.73E-06	95784.5	3.2973E-06	1.2995E-03	3.6535E-03	4.498	12.646
4-6	36.61	13.240	8.73E-06	92997.5	3.2013E-06	1.3232E-03	3.6588E-03	4.717	13.044
5-4	35.32	10.910	8.73E-06	153358	5.2804E-06	8.5094E-04	2.7704E-03	1.839	5.988
5-5	35.52	10.884	8.73E-06	133826	4.6076E-06	1.0169E-03	3.3187E-03	2.519	8.220
5-6	35.53	10.975	8.73E-06	167126	5.7546E-06	7.3375E-04	2.3754E-03	1.455	4.711

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #3 SOLUTION VOLUME - 98 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	72.49					
SR STANDARD #1	---	---	5.88E-08	39538.3					
1-1	36.60	13.785	5.88E-08	6712.93	9.8936E-09	1.1474E-05	3.0464E-05	13.236	35.142
1-2	36.00	11.857	5.88E-08	7458.03	1.1004E-08	1.1400E-05	3.4614E-05	11.824	35.901
1-3	37.54	16.333	5.88E-08	6634.23	9.7763E-09	1.1213E-05	2.5773E-05	13.091	30.088
2-1	35.53	11.035	5.88E-08	33738.5	5.0159E-08	2.0884E-06	6.7240E-06	0.475	1.530
2-2	35.53	10.983	5.88E-08	36377.7	5.4091E-08	1.1380E-06	3.6816E-06	0.240	0.777
2-3	35.56	10.923	5.88E-08	35955.6	5.3462E-08	1.2889E-06	4.1962E-06	0.275	0.896
3-1	35.58	11.150	5.88E-08	33394.0	4.9646E-08	2.2093E-06	7.0499E-06	0.508	1.621
3-2	35.92	12.106	5.88E-08	34820.1	5.1770E-08	1.6805E-06	4.9861E-06	0.370	1.099
3-3	35.89	11.947	5.88E-08	34622.7	5.1476E-08	1.7522E-06	5.2638E-06	0.388	1.167
4-1	36.44	12.626	5.88E-08	4652.77	6.8241E-09	1.2248E-05	3.5348E-05	20.483	59.117
4-2	36.63	13.190	5.88E-08	4720.03	6.9244E-09	1.2161E-05	3.3771E-05	20.043	55.663
4-3	36.43	12.666	5.88E-08	4721.53	6.9266E-09	1.2227E-05	3.5167E-05	20.146	57.944
5-1	35.53	11.008	5.88E-08	20664.5	3.0680E-08	6.7959E-06	2.1935E-05	2.528	8.160
5-2	35.53	10.891	5.88E-08	15431.9	2.2884E-08	8.6801E-06	2.8317E-05	4.329	14.123
5-3	35.49	10.885	5.88E-08	14518.7	2.1523E-08	9.0190E-06	2.9406E-05	4.782	15.593
SR STANDARD #2	---	---	8.73E-06	254602					
1-4	37.17	15.628	8.73E-06	40564.8	1.3888E-06	1.6959E-03	4.0336E-03	13.936	33.147
1-5	38.23	18.360	8.73E-06	42767.3	1.4644E-06	1.6319E-03	3.3981E-03	12.719	26.484
1-6	36.98	14.900	8.73E-06	40716.1	1.3940E-06	1.7034E-03	4.2277E-03	13.946	34.612
2-4	35.59	10.946	8.73E-06	236434	8.1069E-06	1.5034E-04	4.8883E-04	0.212	0.688
2-5	35.53	10.877	8.73E-06	235679	8.0810E-06	1.5686E-04	5.1237E-04	0.222	0.724
2-6	35.58	10.989	8.73E-06	235622	8.0790E-06	1.5711E-04	5.0868E-04	0.222	0.719
3-4	35.77	11.745	8.73E-06	216001	7.4060E-06	3.1782E-04	9.6795E-04	0.490	1.492
3-5	35.91	11.954	8.73E-06	221959	7.6104E-06	2.6772E-04	8.0423E-04	0.401	1.206
3-6	35.61	11.111	8.73E-06	225040	7.7161E-06	2.4449E-04	7.8358E-04	0.362	1.159
4-4	36.67	13.289	8.73E-06	31580.6	1.0807E-06	1.7912E-03	4.9426E-03	18.916	52.198
4-5	36.63	13.029	8.73E-06	28210.4	9.6509E-07	1.8202E-03	5.1175E-03	21.526	60.518
4-6	36.61	13.240	8.73E-06	29774.1	1.0187E-06	1.8087E-03	5.0011E-03	20.263	56.028
5-4	35.52	10.910	8.73E-06	102169.0	3.5018E-06	1.2639E-03	4.1149E-03	4.119	13.411
5-5	35.52	10.884	8.73E-06	81968.7	2.8089E-06	1.4314E-03	4.6713E-03	5.816	18.980
5-6	35.53	10.975	8.73E-06	122205.0	4.1890E-06	1.0975E-03	3.5529E-03	2.990	9.680

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #9 SOLUTION VOLUME - 96 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	71.69					
SR STANDARD #1	---	---	5.88E-08	36373.8					
1-1	36.60	13.785	5.88E-08	3862.47	6.1401E-09	1.2102E-05	3.2133E-05	22.496	59.727
1-2	36.00	11.857	5.88E-08	4426.67	7.0539E-09	1.2091E-05	3.6709E-05	19.562	59.394
1-3	37.54	16.333	5.88E-08	3627.93	5.7602E-09	1.1885E-05	2.7316E-05	23.547	54.122
2-1	35.53	11.035	5.88E-08	28787.7	4.6512E-08	2.9090E-06	9.3663E-06	0.714	2.298
2-2	35.53	10.983	5.88E-08	32148.3	5.1956E-08	1.6203E-06	5.2418E-06	0.356	1.151
2-3	35.56	10.923	5.88E-08	31891.2	5.1539E-08	1.7175E-06	5.5912E-06	0.380	1.238
3-1	35.58	11.150	5.88E-08	28455.7	4.5975E-08	3.0320E-06	9.6753E-06	0.753	2.402
3-2	35.92	12.106	5.88E-08	30208.3	4.8813E-08	2.3386E-06	6.9389E-06	0.547	1.622
3-3	35.89	11.947	5.88E-08	29972.0	4.8431E-08	2.4302E-06	7.3007E-06	0.573	1.720
4-1	36.44	12.626	5.88E-08	3738.67	5.9396E-09	1.2202E-05	3.5216E-05	23.446	67.668
4-2	36.63	13.190	5.88E-08	3759.80	5.9738E-09	1.2131E-05	3.3688E-05	23.176	64.362
4-3	36.43	12.666	5.88E-08	3914.10	6.2237E-09	1.2140E-05	3.4916E-05	22.261	64.028
5-1	35.53	11.008	5.88E-08	15083.2	2.4315E-08	8.1642E-06	2.6351E-05	3.832	12.369
5-2	35.53	10.891	5.88E-08	11281.8	1.8157E-08	9.6219E-06	3.13[illegible]E-05	6.048	19.730
5-3	35.49	10.885	5.88E-08	10663.0	1.7155E-08	9.8703E-06	3.2182E-05	6.566	21.410
SR STANDARD #2	---	---	8.73E-06	234150					
1-4	37.17	15.628	8.73E-06	22806.6	8.4790E-07	1.7837E-03	4.2424E-03	24.009	57.104
1-5	38.23	18.360	8.73E-06	23027.5	8.5614E-07	1.7324E-03	3.6074E-03	23.095	48.088
1-6	36.98	14.900	8.73E-06	23194.0	8.6235E-07	1.7896E-03	4.4415E-03	23.685	58.782
2-4	35.59	10.946	8.73E-06	210467	7.8467E-06	2.0875E-04	6.7875E-04	0.304	0.987
2-5	35.53	10.877	8.73E-06	209414	7.8075E-06	2.1840E-04	7.1342E-04	0.319	1.043
2-6	35.58	10.989	8.73E-06	210066	7.8318E-06	2.1235E-04	6.8754E-04	0.309	1.002
3-4	35.77	11.745	8.73E-06	184481	6.8776E-06	4.3561E-04	1.3267E-03	0.723	2.202
3-5	35.91	11.954	8.73E-06	189615	7.0691E-06	3.8906E-04	1.1687E-03	0.628	1.887
3-6	35.61	11.111	8.73E-06	194172	7.2390E-06	3.5219E-04	1.1287E-03	0.555	1.780
4-4	36.67	13.289	8.73E-06	23246.2	8.6430E-07	1.8043E-03	4.9787E-03	23.825	65.743
4-5	36.63	13.029	8.73E-06	22246.7	8.2702E-07	1.8148E-03	5.1022E-03	25.044	70.410
4-6	36.61	13.240	8.73E-06	20951.0	7.7870E-07	1.8269E-03	5.0516E-03	26.776	74.038
5-4	35.52	10.910	8.73E-06	79658.7	2.9682E-06	1.3645E-03	4.4423E-03	5.246	17.081
5-5	35.52	10.884	8.73E-06	61627.5	2.2957E-06	1.5237E-03	4.9726E-03	7.575	24.721
5-6	35.53	10.975	8.73E-06	88795.8	3.3090E-06	1.2834E-03	4.1548E-03	4.427	14.330

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #15

SOLUTION VOLUME - 94 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	66.94					
SR STANDARD #1	---	---	5.88E-08	33405.6					
1-1	36.60	13.785	5.88E-08	3647.27	6.3147E-09	1.1811E-05	3.1359E-05	21.347	56.677
1-2	36.00	11.857	5.88E-08	4056.77	7.0369E-09	1.1843E-05	3.5956E-05	19.207	58.316
1-3	37.54	16.333	5.88E-08	3272.70	5.6541E-09	1.1660E-05	2.6800E-05	23.537	54.097
2-1	35.53	11.035	5.88E-08	26334.1	4.6328E-08	2.8912E-06	9.3089E-06	0.712	2.293
2-2	35.53	10.983	5.88E-08	29154.4	5.1302E-08	1.7381E-06	5.6228E-06	0.387	1.251
2-3	35.56	10.923	5.88E-08	29235.1	5.1444E-08	1.7037E-06	5.5463E-06	0.378	1.230
3-1	35.58	11.150	5.88E-08	25137.1	4.4217E-08	3.3758E-06	1.0772E-05	0.871	2.780
3-2	35.92	12.106	5.88E-08	26946.8	4.7408E-08	2.6120E-06	7.7502E-06	0.629	1.866
3-3	35.89	11.947	5.88E-08	26751.8	4.7065E-08	2.6931E-06	8.0904E-06	0.653	1.962
4-1	36.44	12.626	5.88E-08	3736.50	6.4721E-09	1.1827E-05	3.4135E-05	20.856	60.194
4-2	36.63	13.190	5.88E-08	3762.67	6.5182E-09	1.1756E-05	3.2646E-05	20.583	57.162
4-3	36.43	12.666	5.88E-08	4019.60	6.9714E-09	1.1718E-05	3.3702E-05	19.183	55.175
5-1	35.53	11.008	5.88E-08	13910.5	2.4416E-08	7.9706E-06	2.5726E-05	3.726	12.025
5-2	35.53	10.891	5.88E-08	10797.0	1.8925E-08	9.2435E-06	3.0155E-05	5.574	18.186
5-3	35.49	10.885	5.88E-08	10214.3	1.7897E-08	9.4925E-06	3.0950E-05	6.053	19.737
SR STANDARD #2	---	---	8.73E-06	216327					
1-4	37.17	15.628	8.73E-06	20905.5	8.4121E-07	1.7480E-03	4.1576E-03	23.716	56.406
1-5	38.23	18.360	8.73E-06	21139.6	8.5066E-07	1.6975E-03	3.5347E-03	22.775	47.423
1-6	36.98	14.900	8.73E-06	21267.3	8.5582E-07	1.7538E-03	4.3526E-03	23.388	58.045
2-4	35.59	10.946	8.73E-06	192862	7.7828E-06	2.1921E-04	7.1274E-04	0.321	1.045
2-5	35.53	10.877	8.73E-06	192933	7.7856E-06	2.1892E-04	7.1510E-04	0.321	1.048
2-6	35.58	10.989	8.73E-06	193265	7.7990E-06	2.1551E-04	6.9776E-04	0.315	1.021
3-4	35.77	11.745	8.73E-06	163682	6.6048E-06	4.8934E-04	1.4903E-03	0.846	2.575
3-5	35.91	11.954	8.73E-06	167893	6.7748E-06	4.4844E-04	1.3471E-03	0.755	2.269
3-6	35.61	11.111	8.73E-06	172477	6.9599E-06	4.0942E-04	1.3122E-03	0.671	2.152
4-4	36.67	13.289	8.73E-06	23351.7	9.3996E-07	1.7497E-03	4.8281E-03	21.245	58.623
4-5	36.63	13.029	8.73E-06	22520.8	9.0642E-07	1.7591E-03	4.9457E-03	22.150	62.272
4-6	36.61	13.240	8.73E-06	20360.2	8.1920E-07	1.7797E-03	4.9211E-03	24.795	68.560
5-4	35.52	10.910	8.73E-06	77491.9	3.1255E-06	1.2996E-03	4.2310E-03	4.745	15.450
5-5	35.52	10.884	8.73E-06	59823.2	2.4122E-06	1.4649E-03	4.7809E-03	6.931	22.619
5-6	35.53	10.975	8.73E-06	81982.8	3.3068E-06	1.2572E-03	4.0699E-03	4.339	14.047

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #18 SOLUTION VOLUME - 92 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	66.95					
SR STANDARD #1	---	---	5.88E-08	32458.5					
1-1	36.60	13.785	5.88E-08	3681.03	6.5606E-09	1.1506E-05	3.0548E-05	20.015	53.142
1-2	36.00	11.857	5.88E-08	4017.30	7.1710E-09	1.1561E-05	3.5100E-05	18.399	55.863
1-3	37.54	16.333	5.88E-08	3213.63	5.7121E-09	1.1400E-05	2.6201E-05	22.777	52.350
2-1	35.53	11.035	5.88E-08	25405.3	4.5996E-08	2.9049E-06	9.3530E-06	0.721	2.321
2-2	35.53	10.983	5.88E-08	28032.9	5.0766E-08	1.8227E-06	5.8964E-06	0.410	1.326
2-3	35.56	10.923	5.88E-08	28113.0	5.0912E-08	1.7882E-06	5.8215E-06	0.401	1.305
3-1	35.58	11.150	5.88E-08	23780.4	4.3047E-08	3.5691E-06	1.1389E-05	0.946	3.020
3-2	35.92	12.106	5.88E-08	25634.5	4.6412E-08	2.7800E-06	8.2485E-06	0.684	2.028
3-3	35.89	11.947	5.88E-08	25492.5	4.6155E-08	2.8402E-06	8.5322E-06	0.702	2.110
4-1	36.44	12.626	5.88E-08	3680.60	6.5598E-09	1.1556E-05	3.3353E-05	20.106	58.028
4-2	36.63	13.190	5.88E-08	3762.67	6.7088E-09	1.1464E-05	3.1835E-05	19.502	54.158
4-3	36.43	12.666	5.88E-08	4056.73	7.2426E-09	1.1408E-05	3.2813E-05	17.977	51.706
5-1	35.53	11.008	5.88E-08	13556.5	2.4487E-08	7.7848E-06	2.5127E-05	3.628	11.711
5-2	35.53	10.891	5.88E-08	10581.5	1.9087E-08	9.0101E-06	2.9394E-05	5.388	17.576
5-3	35.49	10.885	5.88E-08	10152.2	1.8308E-08	9.1973E-06	2.9987E-05	5.734	18.694
SR STANDARD #2	---	---	8.73E-06	208026					
1-4	37.17	15.628	8.73E-06	20500.5	8.5779E-07	1.7072E-03	4.0605E-03	22.715	54.026
1-5	38.23	18.360	8.73E-06	20638.1	8.6356E-07	1.6587E-03	3.4538E-03	21.921	45.646
1-6	36.98	14.900	8.73E-06	21081.7	8.8219E-07	1.7107E-03	4.2457E-03	22.131	54.927
2-4	35.59	10.946	8.73E-06	184663	7.7492E-06	2.2214E-04	7.2227E-04	0.327	1.064
2-5	35.53	10.877	8.73E-06	185158	7.7700E-06	2.1780E-04	7.1145E-04	0.320	1.045
2-6	35.58	10.989	8.73E-06	185782	7.7962E-06	2.1156E-04	6.8499E-04	0.310	1.003
3-4	35.77	11.745	8.73E-06	154607	6.4875E-06	5.0536E-04	1.5391E-03	0.889	2.708
3-5	35.91	11.954	8.73E-06	159436	6.6902E-06	4.5789E-04	1.3755E-03	0.781	2.346
3-6	35.61	11.111	8.73E-06	164118	6.8868E-06	4.1725E-04	1.3373E-03	0.691	2.216
4-4	36.67	13.289	8.73E-06	23260.9	9.7451E-07	1.7049E-03	4.7044E-03	19.966	55.096
4-5	36.63	13.029	8.73E-06	22327.8	9.3450E-07	1.7155E-03	4.8231E-03	20.952	58.904
4-6	36.61	13.240	8.73E-06	20180.8	8.4437E-07	1.7363E-03	4.8011E-03	23.469	64.894
5-4	35.52	10.910	8.73E-06	77206.4	3.2383E-06	1.2463E-03	4.0577E-03	4.392	14.301
5-5	35.52	10.884	8.73E-06	59268.9	2.4853E-06	1.4172E-03	4.6251E-03	6.508	21.239
5-6	35.53	10.975	8.73E-06	80645.5	3.3826E-06	1.2132E-03	3.9276E-03	4.093	13.252

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #23 SOLUTION VOLUME - 90 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	66.44					
SR STANDARD #1	---	---	5.88E-08	30751.2					
1-1	36.60	13.785	5.88E-08	3744.97	7.0490E-09	1.1150E-05	2.9604E-05	18.053	47.932
1-2	36.00	11.857	5.88E-08	4042.77	7.6197E-09	1.1211E-05	3.4039E-05	16.792	50.984
1-3	37.54	16.333	5.88E-08	3160.00	5.9281E-09	1.1106E-05	2.5527E-05	21.383	49.146
2-1	35.53	11.035	5.88E-08	23988.2	4.5840E-08	2.8764E-06	9.2612E-06	0.716	2.306
2-2	35.53	10.983	5.88E-08	26496.6	5.0647E-08	1.8095E-06	5.8538E-06	0.408	1.319
2-3	35.56	10.923	5.88E-08	26358.1	5.0382E-08	1.8669E-06	6.0776E-06	0.423	1.377
3-1	35.58	11.150	5.88E-08	21758.1	4.1567E-08	3.8195E-06	1.2188E-05	1.049	3.346
3-2	35.92	12.106	5.88E-08	23722.7	4.5332E-08	2.9568E-06	8.7733E-06	0.744	2.209
3-3	35.89	11.947	5.88E-08	23426.3	4.4764E-08	3.0841E-06	9.2650E-06	0.786	2.362
4-1	36.44	12.626	5.88E-08	3621.73	6.8129E-09	1.1250E-05	3.2470E-05	18.846	54.393
4-2	36.63	13.190	5.88E-08	3713.67	6.9890E-09	1.1154E-05	3.0976E-05	18.214	50.583
4-3	36.43	12.666	5.88E-08	4096.87	7.7234E-09	1.1056E-05	3.1800E-05	16.338	46.992
5-1	35.53	11.008	5.88E-08	13018.6	2.4820E-08	7.5418E-06	2.4342E-05	3.468	11.193
5-2	35.53	10.891	5.88E-08	10451.6	1.9901E-08	8.6336E-06	2.8166E-05	4.951	16.153
5-3	35.49	10.885	5.88E-08	9978.13	1.8993E-08	8.8449E-06	2.8838E-05	5.315	17.329
SR STANDARD #2	---	---	8.73E-06	197304					
1-4	37.17	15.628	8.73E-06	20637.9	9.1052E-07	1.6589E-03	3.9457E-03	20.794	49.457
1-5	38.23	18.360	8.73E-06	20506.2	9.0469E-07	1.6141E-03	3.3610E-03	20.363	42.400
1-6	36.98	14.900	8.73E-06	21058.0	9.2911E-07	1.6635E-03	4.1286E-03	20.434	50.714
2-4	35.59	10.946	8.73E-06	174702	7.7296E-06	2.2166E-04	7.2071E-04	0.327	1.064
2-5	35.53	10.877	8.73E-06	174732	7.7309E-06	2.2174E-04	7.2432E-04	0.327	1.069
2-6	35.58	10.989	8.73E-06	175999	7.7870E-06	2.0900E-04	6.7670E-04	0.306	0.992
3-4	35.77	11.745	8.73E-06	144386	6.3878E-06	5.1636E-04	1.5726E-03	0.923	2.810
3-5	35.91	11.954	8.73E-06	146946	6.5011E-06	4.8947E-04	1.4704E-03	0.859	2.581
3-6	35.61	11.111	8.73E-06	152254	6.7360E-06	4.4156E-04	1.4152E-03	0.748	2.398
4-4	36.67	13.289	8.73E-06	22961.2	1.0134E-06	1.6594E-03	4.5791E-03	18.690	51.572
4-5	36.63	13.029	8.73E-06	22358.1	9.8666E-07	1.6670E-03	4.6867E-03	19.283	54.212
4-6	36.61	13.240	8.73E-06	19649.3	8.6676E-07	1.6937E-03	4.6834E-03	22.302	61.667
5-4	35.52	10.910	8.73E-06	74976.6	3.3156E-06	1.2020E-03	3.9135E-03	4.138	13.471
5-5	35.52	10.884	8.73E-06	58924.8	2.6052E-06	1.3598E-03	4.4376E-03	5.957	19.441
5-6	35.53	10.975	8.73E-06	78183.5	3.4576E-06	1.1702E-03	3.7884E-03	3.863	12.505

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #28 SOLUTION VOLUME - 88 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	68.41					
SR STANDARD #1	---	---	5.88E-08	30199.0					
1-1	36.60	13.785	5.88E-08	3953.40	7.5816E-09	1.0790E-05	2.8649E-05	16.243	43.126
1-2	36.00	11.857	5.88E-08	4251.57	8.1635E-09	1.0845E-05	3.2929E-05	15.162	46.036
1-3	37.54	16.333	5.88E-08	3322.13	6.3497E-09	1.0773E-05	2.4761E-05	19.364	44.506
2-1	35.53	11.035	5.88E-08	23867.0	4.6443E-08	2.6816E-06	8.6342E-06	0.659	2.122
2-2	35.53	10.983	5.88E-08	25969.4	5.0546E-08	1.7913E-06	5.7947E-06	0.404	1.308
2-3	35.56	10.923	5.88E-08	25991.8	5.0590E-08	1.7803E-06	5.7957E-06	0.402	1.308
3-1	35.58	11.150	5.88E-08	21187.8	4.1215E-08	3.8109E-06	1.2161E-05	1.055	3.368
3-2	35.92	12.106	5.88E-08	22900.3	4.4557E-08	3.0575E-06	9.0719E-06	0.783	2.324
3-3	35.89	11.947	5.88E-08	22744.9	4.4253E-08	3.1252E-06	9.3884E-06	0.806	2.421
4-1	36.44	12.626	5.88E-08	3706.77	7.1003E-09	1.0939E-05	3.1572E-05	17.584	50.749
4-2	36.63	13.190	5.88E-08	3788.37	7.2595E-09	1.0849E-05	3.0129E-05	17.056	47.367
4-3	36.43	12.666	5.88E-08	4215.10	8.0923E-09	1.0732E-05	3.0869E-05	15.137	43.536
5-1	35.53	11.008	5.88E-08	12985.8	2.5208E-08	7.2899E-06	2.3529E-05	3.300	10.653
5-2	35.53	10.891	5.88E-08	10622.1	2.0596E-08	8.2910E-06	2.7048E-05	4.594	14.988
5-3	35.49	10.885	5.88E-08	10103.2	1.9583E-08	8.5203E-06	2.7780E-05	4.966	16.190
SR STANDARD #2	---	---	8.73E-06	192077					
1-4	37.17	15.628	8.73E-06	21531.4	9.7585E-07	1.6085E-03	3.8258E-03	18.812	44.743
1-5	38.23	18.360	8.73E-06	21386.7	9.6927E-07	1.5653E-03	3.2592E-03	18.430	38.377
1-6	36.98	14.900	8.73E-06	22026.1	9.9834E-07	1.6121E-03	4.0010E-03	18.429	45.739
2-4	35.59	10.946	8.73E-06	172140	7.8235E-06	1.9639E-04	6.3853E-04	0.286	0.931
2-5	35.53	10.877	8.73E-06	170924	7.7682E-06	2.0872E-04	6.8178E-04	0.307	1.002
2-6	35.58	10.989	8.73E-06	172351	7.8331E-06	1.9436E-04	6.2930E-04	0.283	0.917
3-4	35.77	11.745	8.73E-06	137962	6.2696E-06	5.3037E-04	1.6153E-03	0.965	2.940
3-5	35.91	11.954	8.73E-06	140747	6.3962E-06	5.0111E-04	1.5054E-03	0.894	2.686
3-6	35.61	11.111	8.73E-06	146062	6.6378E-06	4.5301E-04	1.4519E-03	0.779	2.496
4-4	36.67	13.289	8.73E-06	23719.3	1.0753E-06	1.6095E-03	4.4414E-03	17.083	47.139
4-5	36.63	13.029	8.73E-06	23111.5	1.0477E-06	1.6171E-03	4.5464E-03	17.616	49.526
4-6	36.61	13.240	8.73E-06	20086.6	9.1016E-07	1.6470E-03	4.5540E-03	20.652	57.105
5-4	35.52	10.910	8.73E-06	75779.9	3.4424E-06	1.1478E-03	3.7370E-03	3.806	12.390
5-5	35.52	10.884	8.73E-06	60226.6	2.7352E-06	1.3013E-03	4.2469E-03	5.430	17.721
5-6	35.53	10.975	8.73E-06	78953.6	3.5867E-06	1.1162E-03	3.6135E-03	3.552	11.498

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADON LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #31 SOLUTION VOLUME - 86 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	66.57					
SR STANDARD #1	---	---	5.88E-08	29137.5					
1-1	36.60	13.785	5.88E-08	3993.83	7.9434E-09	1.0471E-05	2.7800E-05	15.044	39.942
1-2	36.00	11.857	5.88E-08	4236.17	8.4336E-09	1.0542E-05	3.2009E-05	14.267	43.316
1-3	37.54	16.333	5.88E-08	3308.37	6.5570E-09	1.0487E-05	2.4103E-05	18.253	41.952
2-1	35.53	11.035	5.88E-08	23002.9	4.6392E-08	2.6315E-06	8.4729E-06	0.647	2.084
2-2	35.53	10.983	5.88E-08	25224.7	5.0886E-08	1.6785E-06	5.4298E-06	0.376	1.218
2-3	35.56	10.923	5.88E-08	25162.9	5.0761E-08	1.7035E-06	5.5459E-06	0.383	1.247
3-1	35.58	11.150	5.88E-08	20165.3	4.0652E-08	3.8434E-06	1.2264E-05	1.079	3.443
3-2	35.92	12.106	5.88E-08	21975.7	4.4314E-08	3.0388E-06	9.0166E-06	0.783	2.322
3-3	35.89	11.947	5.88E-08	21803.8	4.3967E-08	3.1144E-06	9.3559E-06	0.808	2.429
4-1	36.44	12.626	5.88E-08	3651.73	7.2515E-09	1.0660E-05	3.0765E-05	16.777	48.420
4-2	36.63	13.190	5.88E-08	3733.63	7.4171E-09	1.0570E-05	2.9355E-05	16.265	45.168
4-3	36.43	12.666	5.88E-08	4218.80	8.3985E-09	1.0425E-05	2.9985E-05	14.167	40.748
5-1	35.53	11.008	5.88E-08	12793.9	2.5743E-08	7.0109E-06	2.2629E-05	3.108	10.032
5-2	35.53	10.891	5.88E-08	10443.4	2.0989E-08	8.0192E-06	2.6161E-05	4.361	14.226
5-3	35.49	10.885	5.88E-08	9909.10	1.9908E-08	8.2577E-06	2.6924E-05	4.734	15.435
SR STANDARD #2	---	---	8.73E-06	186433					
1-4	37.17	15.628	8.73E-06	21380.9	9.9843E-07	1.5674E-03	3.7279E-03	17.917	42.613
1-5	38.23	18.360	8.73E-06	21313.7	9.9528E-07	1.5246E-03	3.1745E-03	17.482	36.402
1-6	36.98	14.900	8.73E-06	22082.0	1.0313E-06	1.5687E-03	3.8934E-03	17.361	43.088
2-4	35.59	10.946	8.73E-06	166531	7.7977E-06	1.9739E-04	6.4178E-04	0.289	0.939
2-5	35.53	10.877	8.73E-06	166430	7.7930E-06	1.9872E-04	6.4913E-04	0.291	0.951
2-6	35.58	10.989	8.73E-06	167770	7.8558E-06	1.8515E-04	5.9948E-04	0.269	0.871
3-4	35.77	11.745	8.73E-06	131086	6.1374E-06	5.4616E-04	1.6634E-03	1.016	3.093
3-5	35.91	11.954	8.73E-06	135553	6.3466E-06	5.0013E-04	1.5024E-03	0.899	2.702
3-6	35.61	11.111	8.73E-06	140032	6.5564E-06	4.5994E-04	1.4741E-03	0.801	2.566
4-4	36.67	13.289	8.73E-06	23503	1.0978E-06	1.5683E-03	4.3277E-03	16.304	44.990
4-5	36.63	13.029	8.73E-06	23033.7	1.0759E-06	1.5746E-03	4.4268E-03	16.703	46.960
4-6	36.61	13.240	8.73E-06	19752.8	9.2217E-07	1.6071E-03	4.4437E-03	19.889	54.996
5-4	35.52	10.910	8.73E-06	74391.2	3.4816E-06	1.1134E-03	3.6250E-03	3.650	11.883
5-5	35.52	10.884	8.73E-06	59325.0	2.7759E-06	1.2631E-03	4.1222E-03	5.193	16.949
5-6	35.53	10.975	8.73E-06	77285.4	3.6172E-06	1.0843E-03	3.5104E-03	3.421	11.076

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #35 SOLUTION VOLUME - 84 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	63.30					
SR STANDARD #1	---	---	5.88E-08	27116.2					
1-1	36.60	13.785	5.88E-08	3868.83	8.2714E-09	1.0161E-05	2.6978E-05	14.020	37.225
1-2	36.00	11.857	5.88E-08	4125.37	8.8290E-09	1.0216E-05	3.1019E-05	13.206	40.097
1-3	37.54	16.333	5.88E-08	3212.43	6.8447E-09	1.0186E-05	2.3412E-05	16.985	39.038
2-1	35.53	11.035	5.88E-08	21701.1	4.7030E-08	2.4381E-06	7.8502E-06	0.592	1.905
2-2	35.53	10.983	5.88E-08	23686.0	5.1344E-08	1.5444E-06	4.9963E-06	0.343	1.111
2-3	35.56	10.923	5.88E-08	23436.6	5.0802E-08	1.6553E-06	5.3890E-06	0.372	1.211
3-1	35.58	11.150	5.88E-08	18564.9	4.0214E-08	3.8448E-06	1.2269E-05	1.091	3.482
3-2	35.92	12.106	5.88E-08	20162.1	4.3685E-08	3.0971E-06	9.1894E-06	0.809	2.401
3-3	35.89	11.947	5.88E-08	20093.2	4.3535E-08	3.1304E-06	9.4039E-06	0.821	2.465
4-1	36.44	12.626	5.88E-08	3485.20	7.4376E-09	1.0374E-05	2.9941E-05	15.919	45.944
4-2	36.63	13.190	5.88E-08	3581.83	7.6476E-09	1.0278E-05	2.8543E-05	15.339	42.597
4-3	36.43	12.666	5.88E-08	4082.33	8.7354E-09	1.0115E-05	2.9092E-05	13.215	38.009
5-1	35.53	11.008	5.88E-08	12265.20	2.6521E-08	6.6866E-06	2.1582E-05	2.877	9.288
5-2	35.53	10.891	5.88E-08	9956.40	2.1503E-08	7.7261E-06	2.5205E-05	4.101	13.378
5-3	35.49	10.885	5.88E-08	9510.47	2.0534E-08	7.9359E-06	2.5874E-05	4.411	14.381
SR STANDARD #2	---	---	8.73E-06	175046					
1-4	37.17	15.628	8.73E-06	20973.5	1.0432E-06	1.5221E-03	3.6201E-03	16.652	39.604
1-5	38.23	18.360	8.73E-06	20887.8	1.0389E-06	1.4807E-03	3.0832E-03	16.265	33.869
1-6	36.98	14.900	8.73E-06	21412.7	1.0651E-06	1.5255E-03	3.7862E-03	16.346	40.569
2-4	35.59	10.946	8.73E-06	154405	7.7002E-06	2.1296E-04	6.9243E-04	0.316	1.026
2-5	35.53	10.877	8.73E-06	154706	7.7152E-06	2.1021E-04	6.8666E-04	0.311	1.016
2-6	35.58	10.989	8.73E-06	156134	7.7865E-06	1.9518E-04	6.3195E-04	0.286	0.926
3-4	35.77	11.745	8.73E-06	121284	6.0478E-06	5.5190E-04	1.6808E-03	1.041	3.172
3-5	35.91	11.954	8.73E-06	124241	6.1953E-06	5.1951E-04	1.5606E-03	0.957	2.875
3-6	35.61	11.111	8.73E-06	129847	6.4750E-06	4.6608E-04	1.4937E-03	0.822	2.633
4-4	36.67	13.289	8.73E-06	22718.8	1.1303E-06	1.5253E-03	4.2091E-03	15.402	42.500
4-5	36.63	13.029	8.73E-06	22069.3	1.0979E-06	1.5335E-03	4.3114E-03	15.941	44.818
4-6	36.61	13.240	8.73E-06	18733.2	9.3145E-07	1.5678E-03	4.3352E-03	19.210	53.118
5-4	35.52	10.910	8.73E-06	71481.4	3.5631E-06	1.0706E-03	3.4857E-03	3.429	11.165
5-5	35.52	10.884	8.73E-06	57400.0	2.8606E-06	1.2162E-03	3.9691E-03	4.852	15.836
5-6	35.53	10.975	8.73E-06	74541.6	3.7158E-06	1.0387E-03	3.3627E-03	3.190	10.328

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #38 SOLUTION VOLUME - 82 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	65.61					
SR STANDARD #1	---	---	5.88E-08	26216.3					
1-1	36.60	13.785	5.88E-08	3855.00	8.5205E-09	9.8702E-06	2.6206E-05	13.221	35.102
1-2	36.00	11.857	5.88E-08	4096.40	9.0633E-09	9.9264E-06	3.0138E-05	12.500	37.952
1-3	37.54	16.333	5.88E-08	3182.90	7.0092E-09	9.9123E-06	2.2783E-05	16.140	37.096
2-1	35.53	11.035	5.88E-08	20871.6	4.6782E-08	2.4302E-06	7.8246E-06	0.593	1.909
2-2	35.53	10.983	5.88E-08	22677.3	5.0843E-08	1.6092E-06	5.2056E-06	0.361	1.169
2-3	35.56	10.923	5.88E-08	22545.6	5.0546E-08	1.6676E-06	5.4290E-06	0.377	1.226
3-1	35.58	11.150	5.88E-08	17648.5	3.9535E-08	3.8902E-06	1.2414E-05	1.123	3.584
3-2	35.92	12.106	5.88E-08	19161.5	4.2937E-08	3.1729E-06	9.4145E-06	0.843	2.502
3-3	35.89	11.947	5.88E-08	19139.3	4.2887E-08	3.1856E-06	9.5698E-06	0.848	2.547
4-1	36.44	12.626	5.88E-08	3429.40	7.5635E-09	1.0102E-05	2.9156E-05	15.244	43.995
4-2	36.63	13.190	5.88E-08	3540.37	7.8130E-09	1.0001E-05	2.7774E-05	14.609	40.570
4-3	36.43	12.666	5.88E-08	4032.03	8.9185E-09	9.8378E-06	2.8295E-05	12.589	36.209
5-1	35.53	11.008	5.88E-08	11891.20	2.6590E-08	6.5135E-06	2.1023E-05	2.796	9.024
5-2	35.53	10.891	5.88E-08	9798.87	2.1885E-08	7.4649E-06	2.4353E-05	3.893	12.700
5-3	35.49	10.885	5.88E-08	9338.43	2.0850E-08	7.6829E-06	2.5050E-05	4.205	13.712
SR STANDARD #2	---	---	8.73E-06	167744					
1-4	37.17	15.628	8.73E-06	20989.4	1.0894E-06	1.4769E-03	3.5127E-03	15.473	36.801
1-5	38.23	18.360	8.73E-06	20624.9	1.0704E-06	1.4395E-03	2.9974E-03	15.349	31.960
1-6	36.98	14.900	8.73E-06	21315.5	1.1064E-06	1.4812E-03	3.6762E-03	15.280	37.922
2-4	35.59	10.946	8.73E-06	150210	7.8171E-06	1.8429E-04	5.9921E-04	0.269	0.875
2-5	35.53	10.877	8.73E-06	149894	7.8007E-06	1.8793E-04	6.1388E-04	0.275	0.898
2-6	35.58	10.989	8.73E-06	150610	7.8379E-06	1.8014E-04	5.8325E-04	0.262	0.849
3-4	35.77	11.745	8.73E-06	115763	6.0237E-06	5.4360E-04	1.6556E-03	1.030	3.137
3-5	35.91	11.954	8.73E-06	118953	6.1897E-06	5.0825E-04	1.5268E-03	0.937	2.815
3-6	35.61	11.111	8.73E-06	123155	6.4085E-06	4.6839E-04	1.5012E-03	0.834	2.673
4-4	36.67	13.289	8.73E-06	22357.9	1.1606E-06	1.4831E-03	4.0925E-03	14.584	40.243
4-5	36.63	13.029	8.73E-06	21821.0	1.1327E-06	1.4902E-03	4.1895E-03	15.015	42.214
4-6	36.61	13.240	8.73E-06	18474.3	9.5843E-07	1.5252E-03	4.2173E-03	18.162	50.220
5-4	35.52	10.910	8.73E-06	69067.3	3.5925E-06	1.0392E-03	3.3833E-03	3.301	10.748
5-5	35.52	10.884	8.73E-06	56171.4	2.9211E-06	1.1750E-03	3.8346E-03	4.591	14.982
5-6	35.53	10.975	8.73E-06	72017.7	3.7461E-06	1.0078E-03	3.2627E-03	3.070	9.940

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY #49 SOLUTION VOLUME - 80 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	64.06					
SR STANDARD #1	---	---	5.88E-08	23275.0					
1-1	36.60	13.785	5.88E-08	3834.10	9.5506E-09	9.4322E-06	2.5043E-05	11.271	29.926
1-2	36.00	11.857	5.88E-08	4017.57	1.0015E-08	9.4989E-06	2.8840E-05	10.824	32.865
1-3	37.54	16.333	5.88E-08	3128.40	7.7629E-09	9.5298E-06	2.1904E-05	14.011	32.202
2-1	35.53	11.035	5.88E-08	18581.7	4.6911E-08	2.3456E-06	7.5524E-06	0.571	1.837
2-2	35.53	10.983	5.88E-08	20218.4	5.1057E-08	1.5276E-06	4.9419E-06	0.341	1.105
2-3	35.56	10.923	5.88E-08	20257.1	5.1155E-08	1.5070E-06	4.9061E-06	0.336	1.095
3-1	35.58	11.150	5.88E-08	15283.3	3.8555E-08	3.9885E-06	1.2727E-05	1.181	3.768
3-2	35.92	12.106	5.88E-08	16790.9	4.2374E-08	3.2055E-06	9.5110E-06	0.863	2.562
3-3	35.89	11.947	5.88E-08	16618.2	4.1936E-08	3.2936E-06	9.8943E-06	0.896	2.693
4-1	36.44	12.626	5.88E-08	3214.50	7.9810E-09	9.7756E-06	2.8213E-05	13.979	40.345
4-2	36.63	13.190	5.88E-08	3311.30	8.2262E-09	9.6779E-06	2.6877E-05	13.427	37.288
4-3	36.43	12.666	5.88E-08	3817.27	9.5080E-09	9.4844E-06	2.7279E-05	11.385	32.745
5-1	35.53	11.008	5.88E-08	10926.70	2.7518E-08	6.1715E-06	1.9919E-05	2.560	8.261
5-2	35.53	10.891	5.88E-08	9244.87	2.3258E-08	7.0120E-06	2.2876E-05	3.441	11.225
5-3	35.49	10.885	5.88E-08	8624.47	2.1686E-08	7.3304E-06	2.3900E-05	3.858	12.578
SR STANDARD #2	---	---	8.73E-06	149180					
1-4	37.17	15.628	8.73E-06	20556.2	1.1997E-06	1.4201E-03	3.3775E-03	13.509	32.131
1-5	38.23	18.360	8.73E-06	20231.9	1.1807E-06	1.3842E-03	2.8822E-03	13.380	27.859
1-6	36.98	14.900	8.73E-06	20777.0	1.2126E-06	1.4249E-03	3.5365E-03	13.411	33.284
2-4	35.59	10.946	8.73E-06	133450	7.8091E-06	1.8138E-04	5.8973E-04	0.265	0.862
2-5	35.53	10.877	8.73E-06	134019	7.8424E-06	1.7511E-04	5.7201E-04	0.255	0.832
2-6	35.58	10.989	8.73E-06	134074	7.8456E-06	1.7423E-04	5.6412E-04	0.253	0.821
3-4	35.77	11.745	8.73E-06	99633.2	5.8293E-06	5.6843E-04	1.7312E-03	1.113	3.389
3-5	35.91	11.954	8.73E-06	102531	5.9989E-06	5.3310E-04	1.6014E-03	1.014	3.047
3-6	35.61	11.111	8.73E-06	107341	6.2805E-06	4.8216E-04	1.5453E-03	0.876	2.808
4-4	36.67	13.289	8.73E-06	21367.8	1.2472E-06	1.4304E-03	3.9470E-03	13.089	36.117
4-5	36.63	13.029	8.73E-06	20757.7	1.2115E-06	1.4388E-03	4.0449E-03	13.554	38.105
4-6	36.61	13.240	8.73E-06	17395.2	1.0147E-06	1.4772E-03	4.0847E-03	16.616	45.945
5-4	35.52	10.910	8.73E-06	64092.5	3.7485E-06	9.8305E-04	3.2005E-03	2.993	9.744
5-5	35.52	10.884	8.73E-06	52406.3	3.0644E-06	1.1181E-03	3.6488E-03	4.164	13.590
5-6	35.53	10.975	8.73E-06	66547.8	3.8923E-06	9.5442E-04	3.0898E-03	2.799	9.060

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - SR-85 KD

DAY 856 SOLUTION VOLUME - 78 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	62.88					
SR STANDARD #1	---	---	5.88E-08	21865.5					
1-1	36.60	13.785	5.88E-08	3789.20	1.0050E-08	9.1032E-06	2.4170E-05	10.338	27.448
1-2	36.00	11.857	5.88E-08	3970.47	1.0538E-08	9.1621E-06	2.7818E-05	9.922	30.126
1-3	37.54	16.333	5.88E-08	3112.10	8.2235E-09	9.2077E-06	2.1163E-05	12.779	29.371
2-1	35.53	11.035	5.88E-08	17792.7	4.7816E-08	2.1128E-06	6.8028E-06	0.504	1.624
2-2	35.53	10.983	5.88E-08	19369.9	5.2070E-08	1.2946E-06	4.1881E-06	0.284	0.918
2-3	35.56	10.923	5.88E-08	18996.8	5.1063E-08	1.4869E-06	4.8407E-06	0.332	1.082
3-1	35.58	11.150	5.88E-08	14291.4	3.8373E-08	3.9237E-06	1.2521E-05	1.167	3.724
3-2	35.92	12.106	5.88E-08	15612.0	4.1935E-08	3.2089E-06	9.5211E-06	0.873	2.591
3-3	35.89	11.947	5.88E-08	15525.1	4.1700E-08	3.2562E-06	9.7819E-06	0.891	2.677
4-1	36.44	12.626	5.88E-08	3148.60	8.3220E-09	9.4672E-06	2.7323E-05	12.984	37.472
4-2	36.63	13.190	5.88E-08	3209.27	8.4856E-09	9.3876E-06	2.6070E-05	12.626	35.064
4-3	36.43	12.666	5.88E-08	3723.17	9.8715E-09	9.1791E-06	2.6401E-05	10.612	30.523
5-1	35.53	11.008	5.88E-08	10522.20	2.8208E-08	5.8845E-06	1.8993E-05	2.381	7.685
5-2	35.53	10.891	5.88E-08	8850.33	2.3699E-08	6.7518E-06	2.2027E-05	3.252	10.608
5-3	35.49	10.885	5.88E-08	8380.83	2.2433E-08	7.0033E-06	2.2834E-05	3.563	11.617
SR STANDARD #2	---	---	8.73E-06	141333					
1-4	37.17	15.628	8.73E-06	20549.1	1.2660E-06	1.3724E-03	3.2641E-03	12.372	29.426
1-5	38.23	18.360	8.73E-06	20296.7	1.2504E-06	1.3371E-03	2.7842E-03	12.205	25.413
1-6	36.98	14.900	8.73E-06	20556.7	1.2664E-06	1.3794E-03	3.4234E-03	12.430	30.851
2-4	35.59	10.946	8.73E-06	124891	7.7139E-06	1.9511E-04	6.3440E-04	0.289	0.939
2-5	35.53	10.877	8.73E-06	125342	7.7418E-06	1.9008E-04	6.2091E-04	0.280	0.915
2-6	35.58	10.989	8.73E-06	125686	7.7631E-06	1.8573E-04	6.0136E-04	0.273	0.884
3-4	35.77	11.745	8.73E-06	92521.1	5.7136E-06	5.7633E-04	1.7552E-03	1.151	3.506
3-5	35.91	11.954	8.73E-06	94250.8	5.8205E-06	5.5374E-04	1.6634E-03	1.086	3.262
3-6	35.61	11.111	8.73E-06	99514.2	6.1457E-06	4.9598E-04	1.5896E-03	0.921	2.952
4-4	36.67	13.289	8.73E-06	20727.8	1.2770E-06	1.3890E-03	3.8330E-03	12.414	34.256
4-5	36.63	13.029	8.73E-06	20132.9	1.2403E-06	1.3974E-03	3.9287E-03	12.859	36.153
4-6	36.61	13.240	8.73E-06	16887.4	1.0397E-06	1.4356E-03	3.9697E-03	15.759	43.576
5-4	35.52	10.910	8.73E-06	60815.4	3.7543E-06	9.5737E-04	3.1169E-03	2.910	9.475
5-5	35.52	10.884	8.73E-06	50059.0	3.0896E-06	1.0853E-03	3.5418E-03	4.009	13.083
5-6	35.53	10.975	8.73E-06	64334.5	3.9718E-06	9.1527E-04	2.9631E-03	2.630	8.514

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

DARLINGTON ROCK CORES - SR-85 KD

DAY #3 SOLUTION VOLUME- 100 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	25.9					
1-1	33.32	4.605	1.19E-07	70156	3.9279E-08	2.0964E-05	1.5169E-04	6.091	44.073
1-2	33.36	4.454	1.19E-07	63846	3.5745E-08	2.1867E-05	1.6378E-04	6.982	52.293
1-3	33.37	5.431	1.19E-07	72325	4.0494E-08	2.0613E-05	1.2666E-04	5.810	35.697
2-1	33.59	5.053	1.19E-07	175252	9.8143E-08	5.4405E-06	3.6166E-05	0.633	4.206
2-2	33.78	5.360	1.19E-07	184135	1.0312E-07	4.1194E-06	2.5961E-05	0.456	2.873
2-3	33.90	5.946	1.19E-07	181160	1.0145E-07	4.5355E-06	2.5858E-05	0.510	2.909
SR STANDARD #1	---	---	1.19E-07	212490					
1-4	33.43	4.936	1.28E-07	82589	5.0557E-08	2.0298E-05	1.3747E-04	4.582	31.033
1-5	33.04	3.440	1.28E-07	117844	7.2146E-08	1.4812E-05	1.4227E-04	2.343	22.505
1-6	33.57	5.310	1.28E-07	70614	4.3225E-08	2.2127E-05	1.3989E-04	5.842	36.936
2-4	33.65	5.094	1.28E-07	175818	1.0765E-07	5.2999E-06	3.5010E-05	0.562	3.712
2-5	34.08	6.431	1.28E-07	175821	1.0765E-07	5.2325E-06	2.7729E-05	0.555	2.940
2-6	33.89	5.768	1.28E-07	172239	1.0545E-07	5.8290E-06	3.4248E-05	0.631	3.707
SR STANDARD #2	---	---	1.28E-07	209057					

DAY #7 SOLUTION VOLUME - 99 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	8.2					
1-1	33.32	4.605	1.19E-07	75913	4.1286E-08	2.0232E-05	1.4639E-04	5.593	40.468
1-2	33.36	4.454	1.19E-07	70759	3.8482E-08	2.0936E-05	1.5681E-04	6.209	46.507
1-3	33.37	5.431	1.19E-07	87976	4.7847E-08	1.8496E-05	1.1365E-04	4.412	27.108
2-1	33.59	5.053	1.19E-07	190572	1.0365E-07	3.9640E-06	2.6351E-05	0.436	2.901
2-2	33.78	5.360	1.19E-07	194873	1.0599E-07	3.3409E-06	2.1055E-05	0.360	2.267
2-3	33.90	5.946	1.19E-07	189099	1.0285E-07	4.1327E-06	2.3562E-05	0.459	2.615
SR STANDARD #1	---	---	1.19E-07	218793					
1-4	33.43	4.936	1.28E-07	100383	5.8952E-08	1.7917E-05	1.2134E-04	3.469	23.492
1-5	33.04	3.440	1.28E-07	112850	6.6274E-08	1.6206E-05	1.5565E-04	2.791	26.804
1-6	33.57	5.310	1.28E-07	84839	4.9822E-08	2.0201E-05	1.2771E-04	4.627	29.255
2-4	33.65	5.094	1.28E-07	183554	1.0780E-07	5.2074E-06	3.4399E-05	0.551	3.642
2-5	34.08	6.431	1.28E-07	183033	1.0749E-07	5.2196E-06	2.7660E-05	0.554	2.937
2-6	33.89	5.768	1.28E-07	184665	1.0845E-07	5.0035E-06	2.9398E-05	0.527	3.094
SR STANDARD #2	---	---	1.28E-07	217949					

CORE 1-LINDSAY LIMESTONE / CORE 2-VERULAM LIMESTONE

88-85

DARLINGTON ROCK CORES - SR-85 KD

DAY #10 SOLUTION VOLUME - 98 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	17.0					
1-1	33.32	4.605	1.19E-07	87967	4.7462E-08	1.8436E-05	1.3339E-04	4.433	32.076
1-2	33.36	4.454	1.19E-07	88957	4.7996E-08	1.8276E-05	1.3689E-04	4.346	32.550
1-3	33.37	5.431	1.19E-07	105818	5.7095E-08	1.5929E-05	9.7875E-05	3.184	19.565
2-1	33.59	5.053	1.19E-07	197687	1.0667E-07	3.1514E-06	2.0949E-05	0.337	2.241
2-2	33.78	5.360	1.19E-07	203070	1.0958E-07	2.3952E-06	1.5095E-05	0.249	1.572
2-3	33.90	5.946	1.19E-07	192474	1.0386E-07	3.8351E-06	2.1865E-05	0.421	2.403
SR STANDARD #1	---	---	1.19E-07	220531					
1-4	33.43	4.936	1.28E-07	113180	6.6739E-08	1.5735E-05	1.0657E-04	2.691	18.225
1-5	33.04	3.440	1.28E-07	123290	7.2701E-08	1.4372E-05	1.3803E-04	2.256	21.669
1-6	33.57	5.310	1.28E-07	88278	5.2053E-08	1.9426E-05	1.2281E-04	4.259	26.928
2-4	33.65	5.094	1.28E-07	188903	1.1140E-07	4.2367E-06	2.7987E-05	0.434	2.867
2-5	34.08	6.431	1.28E-07	190371	1.1226E-07	3.9651E-06	2.1012E-05	0.403	2.136
2-6	33.89	5.768	1.28E-07	181196	1.0685E-07	5.3583E-06	3.1483E-05	0.572	3.363
SR STANDARD #2	---	---	1.28E-07	217055					

DAY #14 SOLUTION VOLUME - 97 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	15.2					
1-1	33.32	4.605	1.19E-07	102555	5.4538E-08	1.6443E-05	1.1897E-04	3.441	24.897
1-2	33.36	4.454	1.19E-07	104515	5.5581E-08	1.6157E-05	1.2102E-04	3.318	24.850
1-3	33.37	5.431	1.19E-07	123301	6.5572E-08	1.3608E-05	8.3611E-05	2.368	14.552
2-1	33.59	5.053	1.19E-07	203795	1.0838E-07	2.6859E-06	1.7855E-05	0.283	1.880
2-2	33.78	5.360	1.19E-07	210013	1.1169E-07	1.8387E-06	1.1588E-05	0.188	1.184
2-3	33.90	5.946	1.19E-07	200433	1.0660E-07	3.1096E-06	1.7729E-05	0.333	1.898
SR STANDARD #1	---	---	1.19E-07	223753					
1-4	33.43	4.936	1.28E-07	125171	7.2113E-08	1.4209E-05	9.6231E-05	2.249	15.230
1-5	33.04	3.440	1.28E-07	135629	7.8138E-08	1.2826E-05	1.2319E-04	1.873	17.994
1-6	33.57	5.310	1.28E-07	114466	6.5945E-08	1.5711E-05	9.9325E-05	2.719	17.190
2-4	33.65	5.094	1.28E-07	197860	1.1399E-07	3.5374E-06	2.3367E-05	0.354	2.339
2-5	34.08	6.431	1.28E-07	197276	1.1366E-07	3.5767E-06	1.8954E-05	0.359	1.903
2-6	33.89	5.768	1.28E-07	193624	1.1155E-07	4.1244E-06	2.4233E-05	0.422	2.479
SR STANDARD #2	---	---	1.28E-07	222167					

DARLINGTON ROCK CORES - SR-85 KD

DAY #17 SOLUTION VOLUME - 96 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	20.1					
1-1	33.32	4.605	1.19E-07	105779	5.9573E-08	1.5002E-05	1.0855E-04	2.874	20.796
1-2	33.36	4.454	1.19E-07	106652	6.0065E-08	1.4860E-05	1.1130E-04	2.824	21.148
1-3	33.37	5.431	1.19E-07	120198	6.7695E-08	1.2932E-05	7.9461E-05	2.180	13.397
2-1	33.59	5.053	1.19E-07	196282	1.1055E-07	2.1154E-06	1.4062E-05	0.218	1.452
2-2	33.78	5.360	1.19E-07	200217	1.1277E-07	1.5516E-06	9.7786E-06	0.157	0.990
2-3	33.90	5.946	1.19E-07	195323	1.1001E-07	2.2301E-06	1.2715E-05	0.231	1.319
SR STANDARD #1	---	---	1.19E-07	211279					
1-4	33.43	4.936	1.28E-07	124793	7.7011E-08	1.2830E-05	8.6890E-05	1.901	12.877
1-5	33.04	3.440	1.28E-07	132752	8.1924E-08	1.1730E-05	1.1267E-04	1.634	15.696
1-6	33.57	5.310	1.28E-07	114555	7.0692E-08	1.4359E-05	9.0780E-05	2.318	14.656
2-4	33.65	5.094	1.28E-07	190504	1.1757E-07	2.6074E-06	1.7224E-05	0.253	1.672
2-5	34.08	6.431	1.28E-07	189943	1.1722E-07	2.6600E-06	1.4096E-05	0.259	1.372
2-6	33.89	5.768	1.28E-07	186129	1.1487E-07	3.2592E-06	1.9149E-05	0.324	1.903
SR STANDARD #2	---	---	1.28E-07	207404					

DAY #21 SOLUTION VOLUME - 95 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	18.0					
1-1	33.32	4.605	1.19E-07	108876	6.4017E-08	1.3736E-05	9.9385E-05	2.449	17.718
1-2	33.36	4.454	1.19E-07	108580	6.3843E-08	1.3763E-05	1.0308E-04	2.460	18.427
1-3	33.37	5.431	1.19E-07	120300	7.0736E-08	1.2039E-05	7.3973E-05	1.942	11.935
2-1	33.59	5.053	1.19E-07	192488	1.1319E-07	1.4403E-06	9.5742E-06	0.145	0.965
2-2	33.78	5.360	1.19E-07	197722	1.1627E-07	6.7370E-07	4.2458E-06	0.066	0.417
2-3	33.90	5.946	1.19E-07	189219	1.1127E-07	1.8991E-06	1.0828E-05	0.195	1.111
SR STANDARD #1	---	---	1.19E-07	202371					
1-4	33.43	4.936	1.28E-07	124537	7.9092E-08	1.2178E-05	8.2476E-05	1.757	11.901
1-5	33.04	3.440	1.28E-07	132938	8.4428E-08	1.0977E-05	1.0543E-04	1.484	14.252
1-6	33.57	5.310	1.28E-07	112768	7.1617E-08	1.3981E-05	8.8386E-05	2.228	14.085
2-4	33.65	5.094	1.28E-07	189224	1.2018E-07	1.9343E-06	1.2778E-05	0.184	1.213
2-5	34.08	6.431	1.28E-07	185371	1.1773E-07	2.5077E-06	1.3289E-05	0.243	1.288
2-6	33.89	5.768	1.28E-07	183809	1.1674E-07	2.7654E-06	1.6248E-05	0.270	1.588
SR STANDARD #2	---	---	1.28E-07	201535					

DARLINGTON ROCK CORES - SR-85 KD

DAY #24 SOLUTION VOLUME - 94 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	24.7					
1-1	33.32	4.605	1.19E-07	108111	6.3833E-08	1.3637E-05	9.8670E-05	2.438	17.642
1-2	33.36	4.454	1.19E-07	108515	6.4071E-08	1.3561E-05	1.0157E-04	2.416	18.093
1-3	33.37	5.431	1.19E-07	120182	7.0961E-08	1.1857E-05	7.2852E-05	1.907	11.717
2-1	33.59	5.053	1.19E-07	188211	1.1114E-07	1.9280E-06	1.2816E-05	0.198	1.316
2-2	33.78	5.360	1.19E-07	193634	1.1434E-07	1.1363E-06	7.1609E-06	0.113	0.715
2-3	33.90	5.946	1.19E-07	185429	1.0949E-07	2.3095E-06	1.3167E-05	0.241	1.372
SR STANDARD #1	---	---	1.19E-07	201525					
1-4	33.43	4.936	1.28E-07	122686	7.8546E-08	1.2184E-05	8.2520E-05	1.770	11.990
1-5	33.04	3.440	1.28E-07	133509	8.5476E-08	1.0600E-05	1.0181E-04	1.415	13.594
1-6	33.57	5.310	1.28E-07	112120	7.1780E-08	1.3793E-05	8.7203E-05	2.193	13.865
2-4	33.65	5.094	1.28E-07	183841	1.1771E-07	2.5196E-06	1.6644E-05	0.244	1.614
2-5	34.08	6.431	1.28E-07	183179	1.1728E-07	2.5903E-06	1.3727E-05	0.252	1.336
2-6	33.89	5.768	1.28E-07	182653	1.1695E-07	2.6867E-06	1.5786E-05	0.262	1.541
SR STANDARD #2	---	---	1.28E-07	199917					

DAY #29 SOLUTION VOLUME - 93 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	7.1					
1-1	33.32	4.605	1.19E-07	108782	6.6741E-08	1.2780E-05	9.2473E-05	2.185	15.813
1-2	33.36	4.454	1.19E-07	106319	6.5230E-08	1.3134E-05	9.8373E-05	2.298	17.212
1-3	33.37	5.431	1.19E-07	118808	7.2893E-08	1.1259E-05	6.9179E-05	1.763	10.831
2-1	33.59	5.053	1.19E-07	182392	1.1191E-07	1.7208E-06	1.1439E-05	0.176	1.167
2-2	33.78	5.360	1.19E-07	185807	1.1400E-07	1.2057E-06	7.5986E-06	0.121	0.761
2-3	33.90	5.946	1.19E-07	179441	1.1010E-07	2.1403E-06	1.2203E-05	0.222	1.265
SR STANDARD #1	---	---	1.19E-07	193953					
1-4	33.43	4.936	1.28E-07	122602	8.1547E-08	1.1323E-05	7.6688E-05	1.585	10.733
1-5	33.04	3.440	1.28E-07	130399	8.6733E-08	1.0178E-05	9.7752E-05	1.339	12.863
1-6	33.57	5.310	1.28E-07	109617	7.2910E-08	1.3372E-05	8.4541E-05	2.093	13.234
2-4	33.65	5.094	1.28E-07	177813	1.1827E-07	2.3558E-06	1.5562E-05	0.227	1.502
2-5	34.08	6.431	1.28E-07	174869	1.1631E-07	2.7943E-06	1.4808E-05	0.274	1.453
2-6	33.89	5.768	1.28E-07	173619	1.1548E-07	3.0099E-06	1.7684E-05	0.297	1.748
SR STANDARD #2	---	---	1.28E-07	192438					

DARLINGTON ROCK CORES - SR-85 KD

DAY #34 SOLUTION VOLUME - 92 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	21.7					
1-1	33.32	4.605	1.19E-07	103986	6.8393E-08	1.2243E-05	8.8587E-05	2.043	14.783
1-2	33.36	4.454	1.19E-07	101435	6.6715E-08	1.2634E-05	9.4627E-05	2.161	16.188
1-3	33.37	5.431	1.19E-07	111463	7.3312E-08	1.1037E-05	6.7813E-05	1.718	10.557
2-1	33.59	5.053	1.19E-07	172077	1.1319E-07	1.3950E-06	9.2731E-06	0.141	0.935
2-2	33.78	5.360	1.19E-07	173927	1.1440E-07	1.0967E-06	6.9117E-06	0.109	0.690
2-3	33.90	5.946	1.19E-07	166411	1.0946E-07	2.2686E-06	1.2934E-05	0.237	1.349
SR STANDARD #1	---	---	1.19E-07	180913					
1-4	33.43	4.936	1.28E-07	115062	8.3787E-08	1.0661E-05	7.2204E-05	1.452	9.835
1-5	33.04	3.440	1.28E-07	123429	8.9881E-08	9.3001E-06	8.9324E-05	1.181	11.342
1-6	33.57	5.310	1.28E-07	104246	7.5910E-08	1.2508E-05	7.9077E-05	1.881	11.889
2-4	33.65	5.094	1.28E-07	165577	1.2058E-07	1.7777E-06	1.1743E-05	0.168	1.112
2-5	34.08	6.431	1.28E-07	164531	1.1982E-07	1.9355E-06	1.0257E-05	0.184	0.977
2-6	33.89	5.768	1.28E-07	164952	1.2012E-07	1.8734E-06	1.1007E-05	0.178	1.046
SR STANDARD #2	---	---	1.28E-07	175766					

DAY #38 SOLUTION VOLUME - 91 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	19.5					
1-1	33.32	4.605	1.19E-07	101326	6.8367E-08	1.2116E-05	8.7669E-05	2.023	14.635
1-2	33.36	4.454	1.19E-07	98903	6.6732E-08	1.2493E-05	9.3568E-05	2.137	16.003
1-3	33.37	5.431	1.19E-07	108290	7.3067E-08	1.0975E-05	6.7435E-05	1.714	10.533
2-1	33.59	5.053	1.19E-07	164622	1.1108E-07	1.8792E-06	1.2492E-05	0.193	1.283
2-2	33.78	5.360	1.19E-07	169460	1.1435E-07	1.0980E-06	6.9199E-06	0.110	0.691
2-3	33.90	5.946	1.19E-07	162798	1.0985E-07	2.1516E-06	1.2267E-05	0.224	1.274
SR STANDARD #1	---	---	1.19E-07	176353					
1-4	33.43	4.936	1.28E-07	111038	8.2230E-08	1.0917E-05	7.3934E-05	1.515	10.261
1-5	33.04	3.440	1.28E-07	120481	8.9225E-08	9.3575E-06	8.9875E-05	1.197	11.496
1-6	33.57	5.310	1.28E-07	101454	7.5132E-08	1.2557E-05	7.9386E-05	1.907	12.059
2-4	33.65	5.094	1.28E-07	161562	1.1965E-07	1.9778E-06	1.3065E-05	0.189	1.246
2-5	34.08	6.431	1.28E-07	161595	1.1968E-07	1.9471E-06	1.0318E-05	0.186	0.984
2-6	33.89	5.768	1.28E-07	158987	1.1775E-07	2.4125E-06	1.4175E-05	0.234	1.374
SR STANDARD #2	---	---	1.28E-07	172831					

DARLINGTON ROCK CORES - SR-85 KD

DAY 843 SOLUTION VOLUME - 90 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	17.4					
1-1	33.32	4.605	1.19E-07	98671	7.1199E-08	1.1313E-05	8.1857E-05	1.813	13.121
1-2	33.36	4.454	1.19E-07	94956	6.8518E-08	1.1933E-05	8.9379E-05	1.988	14.888
1-3	33.37	5.431	1.19E-07	103802	7.4902E-08	1.0421E-05	6.4031E-05	1.588	9.756
2-1	33.59	5.053	1.19E-07	156885	1.1321E-07	1.3588E-06	9.0330E-06	0.137	0.911
2-2	33.78	5.360	1.19E-07	161153	1.1629E-07	6.3213E-07	3.9838E-06	0.062	0.391
2-3	33.90	5.946	1.19E-07	156014	1.1258E-07	1.4926E-06	8.5100E-06	0.151	0.863
SR STANDARD #1	---	---	1.19E-07	164905					
1-4	33.43	4.936	1.28E-07	106745	8.4672E-08	1.0221E-05	6.9221E-05	1.378	9.330
1-5	33.04	3.440	1.28E-07	116468	9.2386E-08	8.5002E-06	8.1641E-05	1.050	10.086
1-6	33.57	5.310	1.28E-07	97216	7.7112E-08	1.1954E-05	7.5573E-05	1.769	11.185
2-4	33.65	5.094	1.28E-07	154085	1.2223E-07	1.3524E-06	8.9335E-06	0.126	0.834
2-5	34.08	6.431	1.28E-07	152867	1.2126E-07	1.5589E-06	8.2612E-06	0.147	0.778
2-6	33.89	5.768	1.28E-07	151506	1.2002E-07	1.8558E-06	1.0904E-05	0.176	1.037
SR STANDARD #2	---	---	1.28E-07	161359					

DAY 873 SOLUTION VOLUME - 89 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	5.9					
1-1	33.32	4.605	1.19E-07	73844	7.3538E-08	1.0640E-05	7.6987E-05	1.651	11.948
1-2	33.36	4.454	1.19E-07	71009	7.0714E-08	1.1287E-05	8.4540E-05	1.822	13.644
1-3	33.37	5.431	1.19E-07	76244	7.5928E-08	1.0065E-05	6.1846E-05	1.513	9.296
2-1	33.59	5.053	1.19E-07	114870	1.1440E-07	1.0687E-06	7.1040E-06	0.107	0.709
2-2	33.78	5.360	1.19E-07	115032	1.1456E-07	1.0254E-06	6.4624E-06	0.102	0.644
2-3	33.90	5.946	1.19E-07	112261	1.1180E-07	1.6566E-06	9.4449E-06	0.169	0.964
SR STANDARD #1	---	---	1.19E-07	119492					
1-4	33.43	4.936	1.28E-07	77012	8.5519E-08	9.9094E-06	6.7114E-05	1.322	8.957
1-5	33.04	3.440	1.28E-07	85554	9.5006E-08	7.7874E-06	7.4796E-05	0.935	8.985
1-6	33.57	5.310	1.28E-07	71417	7.9306E-08	1.1312E-05	7.1512E-05	1.628	10.291
2-4	33.65	5.094	1.28E-07	111769	1.2412E-07	8.9948E-07	5.9418E-06	0.083	0.546
2-5	34.08	6.431	1.28E-07	109260	1.2133E-07	1.5257E-06	8.0853E-06	0.144	0.761
2-6	33.89	5.768	1.28E-07	110167	1.2234E-07	1.3025E-06	7.6528E-06	0.122	0.714
SR STANDARD #2	---	---	1.28E-07	115264					

QUEENSTON SHALE - SR-85 KD

DAY #1 SOLUTION VOLUME- 100 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	63.50					
6-1	---	17.7582	1.19E-06	45741.6	9.1753E-07	---	1.3042E-04	---	1.672
6-2	---	17.7544	1.19E-06	25818.8	5.1734E-07	---	3.2204E-04	---	7.323
6-3	---	17.7570	1.19E-06	38418.5	7.7043E-07	---	2.0084E-04	---	3.067
SR STANDARD #1	---	---	1.19E-06	59306.2					
6-4	---	17.7514	1.18E-08	45947.7	9.0394E-09	---	1.3219E-06	---	1.720
6-5	---	17.7531	1.18E-08	41357.4	8.1351E-09	---	1.7547E-06	---	2.538
6-6	---	17.7552	1.18E-08	38539.3	7.5799E-09	---	2.0203E-06	---	3.136
SR STANDARD #2	---	---	1.18E-08	59960.4					
6-7	---	17.7527	5.39E-10	48893.7	4.4321E-10	---	4.5865E-08	---	1.217
6-8	---	17.7556	5.39E-10	41648.8	3.7745E-10	---	7.7338E-08	---	2.411
6-9	---	17.7508	5.39E-10	51516.6	4.6702E-10	---	3.4470E-08	---	0.868
SR STANDARD #3	---	---	5.39E-10	59447.5					

DAY #3 SOLUTION VOLUME - 99 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	57.08					
6-1	---	17.7582	1.19E-06	36968.0	7.5711E-07	---	2.0513E-04	---	3.188
6-2	---	17.7544	1.19E-06	36100.9	7.3932E-07	---	2.1361E-04	---	3.399
6-3	---	17.7570	1.19E-06	39406.8	8.0713E-07	---	1.8144E-04	---	2.645
SR STANDARD #1	---	---	1.19E-06	58072.8					
6-4	---	17.7514	1.18E-08	38742.8	7.8057E-09	---	1.8935E-06	---	2.854
6-5	---	17.7531	1.18E-08	39589.2	7.9765E-09	---	1.8124E-06	---	2.673
6-6	---	17.7552	1.18E-08	34929.4	7.0362E-09	---	2.2578E-06	---	3.775
SR STANDARD #2	---	---	1.18E-08	58539.0					
6-7	---	17.7527	5.39E-10	39305.5	3.6363E-10	---	8.3128E-08	---	2.689
6-8	---	17.7556	5.39E-10	41952.6	3.8815E-10	---	7.1491E-08	---	2.167
6-9	---	17.7508	5.39E-10	35251.1	3.2607E-10	---	1.0094E-07	---	3.642
SR STANDARD #3	---	---	5.39E-10	58234.1					

QUEENSTON SHALE - SR-85 KD

DAY #9 SOLUTION VOLUME - 98 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	51.47					
6-1	---	17.7582	1.19E-06	8061.87	1.7643E-07	---	4.7544E-04	---	31.704
6-2	---	17.7544	1.19E-06	13713.4	3.0091E-07	---	4.1714E-04	---	16.309
6-3	---	17.7570	1.19E-06	14857.9	3.2611E-07	---	4.0526E-04	---	14.620
SR STANDARD #1	---	---	1.19E-06	54080.7					
6-4	---	17.7514	1.18E-08	8415.02	1.8100E-09	---	4.6879E-06	---	30.470
6-5	---	17.7531	1.18E-08	14445.0	3.1150E-09	---	4.0751E-06	---	15.391
6-6	---	17.7552	1.18E-08	16795.9	3.6238E-09	---	3.8359E-06	---	12.453
SR STANDARD #2	---	---	1.18E-08	54575.1					
6-7	---	17.7527	5.39E-10	5953.45	5.8036E-11	---	2.2568E-07	---	45.749
6-8	---	17.7556	5.39E-10	8064.70	7.8796E-11	---	2.1590E-07	---	32.236
6-9	---	17.7508	5.39E-10	7365.27	7.1918E-11	---	2.1919E-07	---	35.856
SR STANDARD #3	---	---	5.39E-10	54865.6					

DAY #15 SOLUTION VOLUME - 97 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.13					
6-1	---	17.7582	1.19E-06	1439.40	3.2049E-08	---	5.3763E-04	---	197.352
6-2	---	17.7544	1.19E-06	1772.13	3.9753E-08	---	5.3417E-04	---	158.083
6-3	---	17.7570	1.19E-06	1909.40	4.2931E-08	---	5.3261E-04	---	145.955
10E-06 SR STAND.	---	---	1.19E-06	51453.2					
6-4	---	17.7514	1.18E-08	1589.30	3.5390E-10	---	5.3164E-06	---	176.731
6-5	---	17.7531	1.18E-08	1940.33	4.3488E-10	---	5.2783E-06	---	142.792
6-6	---	17.7552	1.18E-08	2829.87	6.4008E-10	---	5.1823E-06	---	95.252
10E-08 SR STAND.	---	---	1.18E-08	51208.1					
6-7	---	17.7527	5.39E-10	1328.13	1.3257E-11	---	2.4417E-07	---	216.682
6-8	---	17.7556	5.39E-10	1782.83	1.7993E-11	---	2.4194E-07	---	158.191
6-9	---	17.7508	5.39E-10	1161.93	1.1527E-11	---	2.4500E-07	---	250.066
10E-10 SR STAND.	---	---	5.39E-10	51810.9					

QUEENSTON SHALE - SR-85 KD

DAY #18 SOLUTION VOLUME - 96 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.33					
6-1	---	17.7582	1.19E-06	1239.83	2.8574E-08	---	5.3368E-04	---	219.734
6-2	---	17.7544	1.19E-06	1271.80	2.9344E-08	---	5.3344E-04	---	213.868
6-3	---	17.7570	1.19E-06	1318.20	3.0463E-08	---	5.3285E-04	---	205.788
SR STANDARD #1	---	---	1.19E-06	49426.5					
6-4	---	17.7514	1.18E-08	1393.10	3.1265E-10	---	5.2805E-06	---	198.702
6-5	---	17.7531	1.18E-08	1362.90	3.0560E-10	---	5.2833E-06	---	203.393
6-6	---	17.7552	1.18E-08	1618.10	3.6519E-10	---	5.2553E-06	---	169.298
SR STANDARD #2	---	---	1.18E-08	50582.3					
6-7	---	17.7527	5.39E-10	1230.43	1.2610E-11	---	2.4195E-07	---	225.743
6-8	---	17.7556	5.39E-10	1508.00	1.5586E-11	---	2.4055E-07	---	181.576
6-9	---	17.7508	5.39E-10	1022.10	1.0376E-11	---	2.4301E-07	---	275.531
SR STANDARD #3	---	---	5.39E-10	50327					

DAY #23 SOLUTION VOLUME - 95 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.73					
6-1	---	17.7582	1.19E-06	1114.37	2.6826E-08	---	5.2892E-04	---	231.962
6-2	---	17.7544	1.19E-06	1098.40	2.6422E-08	---	5.2922E-04	---	235.643
6-3	---	17.7570	1.19E-06	1128.27	2.7178E-08	---	5.2879E-04	---	228.904
SR STANDARD #1	---	---	1.19E-06	47060.6					
6-4	---	17.7514	1.18E-08	1330.50	3.1353E-10	---	5.2251E-06	---	196.067
6-5	---	17.7531	1.18E-08	1157.40	2.7099E-10	---	5.2440E-06	---	227.354
6-6	---	17.7552	1.18E-08	1341.43	3.1621E-10	---	5.2228E-06	---	194.314
SR STANDARD #2	---	---	1.18E-08	48070.2					
6-7	---	17.7527	5.39E-10	1120.87	1.2246E-11	---	2.3960E-07	---	230.190
6-8	---	17.7556	5.39E-10	1361.20	1.5006E-11	---	2.3831E-07	---	186.831
6-9	---	17.7508	5.39E-10	1001.17	1.0871E-11	---	2.4025E-07	---	260.007
SR STANDARD #3	---	---	5.39E-10	46981.6					

QUEENSTON SHALE - SR-85 KD

DAY #28 SOLUTION VOLUME - 94 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.70					
6-1	---	17.7582	1.19E-06	1049.67	2.6335E-08	---	5.2357E-04	---	233.898
6-2	---	17.7544	1.19E-06	1045.33	2.6220E-08	---	5.2374E-04	---	234.996
6-3	---	17.7570	1.19E-06	1071.47	2.6912E-08	---	5.2335E-04	---	228.785
SR STANDARD #1	---	---	1.19E-06	45014.7					
6-4	---	17.7514	1.18E-08	1337.53	3.3230E-10	---	5.1617E-06	---	182.744
6-5	---	17.7531	1.18E-08	1089.83	2.6814E-10	---	5.1901E-06	---	227.719
6-6	---	17.7552	1.18E-08	1236.80	3.0621E-10	---	5.1723E-06	---	198.725
SR STANDARD #2	---	---	1.18E-08	45608.3					
6-7	---	17.7527	5.39E-10	1035.10	1.1708E-11	---	2.3732E-07	---	238.470
6-8	---	17.7556	5.39E-10	1331.57	1.5248E-11	---	2.3569E-07	---	181.841
6-9	---	17.7508	5.39E-10	1028.50	1.1629E-11	---	2.3738E-07	---	240.147
SR STANDARD #3	---	---	5.39E-10	45189.4					

DAY #31 SOLUTION VOLUME - 93 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.70					
6-1	---	17.7582	1.19E-06	1087.43	2.8273E-08	---	5.1714E-04	---	215.191
6-2	---	17.7544	1.19E-06	1086.67	2.8252E-08	---	5.1726E-04	---	215.399
6-3	---	17.7570	1.19E-06	1079.90	2.8066E-08	---	5.1727E-04	---	216.824
SR STANDARD #1	---	---	1.19E-06	43522.6					
6-4	---	17.7514	1.18E-08	1388.27	3.5596E-10	---	5.0962E-06	---	168.435
6-5	---	17.7531	1.18E-08	1112.63	2.8238E-10	---	5.1285E-06	---	213.664
6-6	---	17.7552	1.18E-08	1260.90	3.2196E-10	---	5.1103E-06	---	186.734
SR STANDARD #2	---	---	1.18E-08	44262.6					
6-7	---	17.7527	5.39E-10	1077.23	1.2602E-11	---	2.3440E-07	---	218.819
6-8	---	17.7556	5.39E-10	1383.13	1.6372E-11	---	2.3268E-07	---	167.197
6-9	---	17.7508	5.39E-10	1112.63	1.3039E-11	---	2.3423E-07	---	211.344
SR STANDARD #3	---	---	5.39E-10	43788.5					

QUEENSTON SHALE - SR-85 KD

DAY #35 SOLUTION VOLUME - 92 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.57					
6-1	---	17.7582	1.19E-06	971.03	2.7063E-08	---	5.1211E-04	---	222.622
6-2	---	17.7544	1.19E-06	966.37	2.6925E-08	---	5.1228E-04	---	223.834
6-3	---	17.7570	1.19E-06	964.73	2.6877E-08	---	5.1223E-04	---	224.214
SR STANDARD #1	---	---	1.19E-06	40352.6					
6-4	---	17.7514	1.18E-08	1247.77	3.4054E-10	---	5.0482E-06	---	174.402
6-5	---	17.7531	1.18E-08	999.57	2.6970E-10	---	5.0789E-06	---	221.547
6-6	---	17.7552	1.18E-08	1113.37	3.0218E-10	---	5.0640E-06	---	197.155
SR STANDARD #2	---	---	1.18E-08	41399.9					
6-7	---	17.7527	5.39E-10	953.10	1.1865E-11	---	2.3220E-07	---	230.241
6-8	---	17.7556	5.39E-10	1213.70	1.5306E-11	---	2.3065E-07	---	177.284
6-9	---	17.7508	5.39E-10	1030.10	1.2882E-11	---	2.3178E-07	---	211.682
SR STANDARD #3	---	---	5.39E-10	40873.3					

DAY #38 SOLUTION VOLUME - 91 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.57					
6-1	---	17.7582	1.19E-06	968.70	2.7125E-08	---	5.0652E-04	---	219.688
6-2	---	17.7544	1.19E-06	961.77	2.6920E-08	---	5.0672E-04	---	221.451
6-3	---	17.7570	1.19E-06	978.67	2.7420E-08	---	5.0642E-04	---	217.280
SR STANDARD #1	---	---	1.19E-06	40201.3					
6-4	---	17.7514	1.18E-08	1271.77	3.4746E-10	---	4.9903E-06	---	168.967
6-5	---	17.7531	1.18E-08	995.13	2.6856E-10	---	5.0242E-06	---	220.097
6-6	---	17.7552	1.18E-08	1116.47	3.0317E-10	---	5.0086E-06	---	194.363
SR STANDARD #2	---	---	1.18E-08	41424.3					
6-7	---	17.7527	5.39E-10	946.13	1.1824E-11	---	2.2970E-07	---	228.545
6-8	---	17.7556	5.39E-10	1250.47	1.5856E-11	---	2.2790E-07	---	169.101
6-9	---	17.7508	5.39E-10	1044.80	1.3131E-11	---	2.2915E-07	---	205.306
SR STANDARD #3	---	---	5.39E-10	40741.4					

QUEENSTON SHALE - SR-85 KD

DAY #43 SOLUTION VOLUME - 90 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.97					
6-1	---	17.7582	1.19E-06	931.30	2.7428E-08	---	5.0082E-04	---	214.818
6-2	---	17.7544	1.19E-06	948.53	2.7967E-08	---	5.0070E-04	---	210.623
6-3	---	17.7570	1.19E-06	946.33	2.7898E-08	---	5.0065E-04	---	211.124
SR STANDARD #1	---	---	1.19E-06	38075.8					
6-4	---	17.7514	1.18E-08	1243.03	3.6266E-10	---	4.9289E-06	---	159.895
6-5	---	17.7531	1.18E-08	935.37	2.6875E-10	---	4.9689E-06	---	217.522
6-6	---	17.7552	1.18E-08	1072.50	3.1061E-10	---	4.9503E-06	---	187.501
SR STANDARD #2	---	---	1.18E-08	38711.2					
6-7	---	17.7527	5.39E-10	922.60	1.2203E-11	---	2.2701E-07	---	218.850
6-8	---	17.7556	5.39E-10	1201.23	1.6122E-11	---	2.2528E-07	---	164.393
6-9	---	17.7508	5.39E-10	1011.43	1.3453E-11	---	2.2649E-07	---	198.075
SR STANDARD #3	---	---	5.39E-10	38377					

DAY #49 SOLUTION VOLUME - 89 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.80					
6-1	---	17.7582	1.19E-06	900.00	2.8195E-08	---	4.9493E-04	---	206.512
6-2	---	17.7544	1.19E-06	920.20	2.8870E-08	---	4.9475E-04	---	201.612
6-3	---	17.7570	1.19E-06	904.60	2.8349E-08	---	4.9490E-04	---	205.380
SR STANDARD #1	---	---	1.19E-06	35685.6					
6-4	---	17.7514	1.18E-08	1186.17	3.6679E-10	---	4.8724E-06	---	156.280
6-5	---	17.7531	1.18E-08	882.57	2.6828E-10	---	4.9139E-06	---	215.488
6-6	---	17.7552	1.18E-08	1015.70	3.1148E-10	---	4.8949E-06	---	184.885
SR STANDARD #2	---	---	1.18E-08	36420.5					
6-7	---	17.7527	5.39E-10	852.83	1.1939E-11	---	2.2460E-07	---	221.325
6-8	---	17.7556	5.39E-10	1136.47	1.6187E-11	---	2.2275E-07	---	161.892
6-9	---	17.7508	5.39E-10	962.70	1.3584E-11	---	2.2392E-07	---	193.925
SR STANDARD #3	---	---	5.39E-10	36039.6					

QUEENSTON SHALE - SR-85 KD

DAY #56 SOLUTION VOLUME - 88 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.23					
6-1	---	17.7582	1.19E-06	863.43	2.8399E-08	---	4.8928E-04	---	202.690
6-2	---	17.7544	1.19E-06	924.87	3.0558E-08	---	4.8848E-04	---	188.060
6-3	---	17.7570	1.19E-06	910.60	3.0057E-08	---	4.8862E-04	---	191.253
SR STANDARD #1	---	---	1.19E-06	33920.8					
6-4	---	17.7514	1.18E-08	1188.37	3.9073E-10	---	4.8076E-06	---	144.753
6-5	---	17.7531	1.18E-08	855.60	2.7599E-10	---	4.8555E-06	---	206.978
6-6	---	17.7552	1.18E-08	1011.90	3.2988E-10	---	4.8322E-06	---	172.332
SR STANDARD #2	---	---	1.18E-08	34275.6					
6-7	---	17.7527	5.39E-10	835.40	1.2361E-11	---	2.2190E-07	---	211.198
6-8	---	17.7556	5.39E-10	1123.87	1.6931E-11	---	2.1993E-07	---	152.824
6-9	---	17.7508	5.39E-10	983.73	1.4711E-11	---	2.2093E-07	---	176.686
SR STANDARD #3	---	---	5.39E-10	34075.4					

DAY #63 SOLUTION VOLUME - 87 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	64.23					
6-1	---	17.7582	1.19E-06	824.87	2.8831E-08	---	4.8354E-04	---	197.310
6-2	---	17.7544	1.19E-06	929.37	3.2792E-08	---	4.8200E-04	---	172.922
6-3	---	17.7570	1.19E-06	898.40	3.1619E-08	---	4.8241E-04	---	179.498
SR STANDARD #1	---	---	1.19E-06	31459.2					
6-4	---	17.7514	1.18E-08	1164.00	4.0865E-10	---	4.7455E-06	---	136.619
6-5	---	17.7531	1.18E-08	817.77	2.8000E-10	---	4.7986E-06	---	201.624
6-6	---	17.7552	1.18E-08	981.93	3.4100E-10	---	4.7726E-06	---	164.661
SR STANDARD #2	---	---	1.18E-08	31820.7					
6-7	---	17.7527	5.39E-10	811.97	1.2822E-11	---	2.1918E-07	---	201.116
6-8	---	17.7556	5.39E-10	1123.40	1.8162E-11	---	2.1692E-07	---	140.517
6-9	---	17.7508	5.39E-10	998.30	1.6017E-11	---	2.1788E-07	---	160.036
SR STANDARD #3	---	---	5.39E-10	31498.1					

QUEENSTON SHALE - SR-85 KD

DAY #70 SOLUTION VOLUME - 86 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/M) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.87					
6-1	---	17.7582	1.19E-06	789.57	3.0017E-08	---	4.7750E-04	---	187.148
6-2	---	17.7544	1.19E-06	887.10	3.4002E-08	---	4.7596E-04	---	164.683
6-3	---	17.7570	1.19E-06	864.87	3.3093E-08	---	4.7626E-04	---	169.311
SR STANDARD #1	---	---	1.19E-06	29181.5					
6-4	---	17.7514	1.18E-08	1123.30	4.2526E-10	---	4.6841E-06	---	129.584
6-5	---	17.7531	1.18E-08	772.37	2.8558E-10	---	4.7412E-06	---	195.315
6-6	---	17.7552	1.18E-08	957.47	3.5926E-10	---	4.7103E-06	---	154.249
SR STANDARD #2	---	---	1.18E-08	29701.3					
6-7	---	17.7527	5.39E-10	770.80	1.3024E-11	---	2.1658E-07	---	195.644
6-8	---	17.7556	5.39E-10	1086.03	1.8758E-11	---	2.1418E-07	---	134.332
6-9	---	17.7508	5.39E-10	940.03	1.6102E-11	---	2.1534E-07	---	157.330
SR STANDARD #3	---	---	5.39E-10	29684.4					

APPENDIX B

CESIUM SORPTION RESULTS: RAW DATA

LAKEVIEW ROCK CORES - CS-137 KD

DAY #1 SOLUTION VOLUME- 100 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	49.90					
STANDARD #1	---	---	1.36E-10	4381.85					
1-10	39.77	22.667	1.36E-10	448.20	1.2504E-11	4.2542E-08	7.4641E-08	24.833	43.570
1-11	39.49	21.936	1.36E-10	445.60	1.2423E-11	4.2872E-08	7.7179E-08	25.190	45.348
1-12	39.44	21.891	1.36E-10	554.75	1.5850E-11	4.1736E-08	7.5193E-08	19.221	34.629
2-13	35.56	11.296	1.36E-10	1502.90	4.5616E-11	3.4822E-08	1.0962E-07	5.572	17.541
2-14	35.57	11.346	1.36E-10	1060.05	3.1713E-11	4.0167E-08	1.2592E-07	9.245	28.983
2-15	35.49	11.297	1.36E-10	1075.55	3.2200E-11	4.0069E-08	1.2588E-07	9.083	28.535
3-11	35.82	12.145	1.36E-10	767.30	2.2523E-11	4.3401E-08	1.2801E-07	14.066	41.485
3-12	35.86	11.997	1.36E-10	1049.40	3.1379E-11	3.9970E-08	1.1947E-07	9.298	27.791
3-13	35.95	12.216	1.36E-10	920.75	2.7340E-11	4.1409E-08	1.2186E-07	11.055	32.534
4-15	36.39	12.709	1.36E-10	513.70	1.4561E-11	4.5719E-08	1.3091E-07	22.919	65.624
4-16	36.31	12.607	1.36E-10	503.15	1.4230E-11	4.5945E-08	1.3233E-07	23.568	67.879
4-17	36.21	12.600	1.36E-10	619.00	1.7867E-11	4.4696E-08	1.2845E-07	18.260	52.476
5-11	35.60	11.351	1.36E-10	583.85	1.6763E-11	4.5886E-08	1.4391E-07	19.980	62.664
5-12	35.62	11.379	1.36E-10	642.05	1.8590E-11	4.5158E-08	1.4136E-07	17.731	55.503
5-13	35.54	11.256	1.36E-10	715.35	2.0892E-11	4.4372E-08	1.4010E-07	15.503	48.950
STANDARD #2	---	---	1.38E-08	429133					
1-13	38.76	20.031	1.38E-08	31840.1	1.0224E-09	4.5163E-06	8.7391E-06	32.243	62.390
1-14	39.69	22.579	1.38E-08	43675.3	1.4031E-09	4.2791E-06	7.5219E-06	22.262	39.132
1-15	39.49	22.032	1.38E-08	27688.1	8.8889E-10	4.4792E-06	8.0284E-06	36.781	65.927
2-16	35.57	11.354	1.38E-08	308916	9.9336E-09	1.4892E-06	4.6653E-06	1.094	3.428
2-17	35.56	11.272	1.38E-08	345505	1.1110E-08	1.0362E-06	3.2690E-06	0.681	2.148
2-18	35.56	11.392	1.38E-08	324594	1.0438E-08	1.2953E-06	4.0433E-06	0.906	2.828
3-14	35.88	12.113	1.38E-08	205496	6.6075E-09	2.7463E-06	8.1349E-06	3.034	8.987
3-15	35.89	12.277	1.38E-08	227297	7.3086E-09	2.4779E-06	7.2438E-06	2.475	7.234
3-16	35.94	12.214	1.38E-08	195166	6.2752E-09	2.8684E-06	8.4402E-06	3.336	9.818
4-18	36.26	12.626	1.38E-08	37446.4	1.2027E-09	4.7596E-06	1.3669E-05	28.886	82.955
4-19	36.23	12.599	1.38E-08	64300.6	2.0664E-09	4.4369E-06	1.2759E-05	15.673	45.069
4-20	36.30	12.673	1.38E-08	50253.7	1.6146E-09	4.5989E-06	1.3173E-05	20.790	59.550
5-14	35.60	11.287	1.38E-08	59577.4	1.9145E-09	4.5739E-06	1.4426E-05	17.439	55.003
5-15	35.57	11.312	1.38E-08	74713.6	2.4013E-09	4.3903E-06	1.3805E-05	13.345	41.963
5-16	35.60	11.325	1.38E-08	95015.2	3.0542E-09	4.1353E-06	1.2999E-05	9.883	31.067

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #2 SOLUTION VOLUME - 99 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	46.90					
STANDARD #1	---	---	1.36E-10	4387.25					
1-10	39.77	22.667	1.36E-10	123.25	2.3923E-12	4.5565E-08	7.9945E-08	139.023	243.921
1-11	39.49	21.936	1.36E-10	113.25	2.0790E-12	4.5996E-08	8.2803E-08	161.489	290.718
1-12	39.44	21.891	1.36E-10	122.15	2.3579E-12	4.5958E-08	8.2801E-08	142.273	256.326
2-13	35.56	11.296	1.36E-10	913.00	2.7138E-11	4.1521E-08	1.3071E-07	11.168	35.156
2-14	35.57	11.346	1.36E-10	579.95	1.6671E-11	4.5501E-08	1.4265E-07	19.922	62.456
2-15	35.49	11.297	1.36E-10	650.05	1.8899E-11	4.4752E-08	1.4059E-07	17.284	54.299
3-11	35.82	12.145	1.36E-10	325.80	8.7390E-12	4.8187E-08	1.4212E-07	40.248	118.705
3-12	35.86	11.997	1.36E-10	431.60	1.2054E-11	4.6879E-08	1.4012E-07	28.387	84.851
3-13	35.95	12.216	1.36E-10	381.95	1.0498E-11	4.7348E-08	1.3934E-07	32.920	96.879
4-15	36.39	12.709	1.36E-10	130.35	2.6148E-12	4.9714E-08	1.4235E-07	138.778	397.366
4-16	36.31	12.607	1.36E-10	141.80	2.9736E-12	4.9690E-08	1.4311E-07	121.974	351.302
4-17	36.21	12.600	1.36E-10	163.20	3.6441E-12	4.9576E-08	1.4247E-07	99.302	285.374
5-11	35.60	11.351	1.36E-10	212.05	5.1748E-12	4.9842E-08	1.5632E-07	70.305	220.496
5-12	35.62	11.379	1.36E-10	246.95	6.2683E-12	4.9398E-08	1.5463E-07	57.522	180.063
5-13	35.54	11.256	1.36E-10	266.30	6.8747E-12	4.9278E-08	1.5559E-07	52.321	165.201
STANDARD #2	---	---	1.38E-08	427082					
1-13	38.76	20.031	1.38E-08	7717.05	2.4787E-10	4.7422E-06	9.1762E-06	139.650	270.222
1-14	39.69	22.579	1.38E-08	8351.15	2.6836E-10	4.6241E-06	8.1283E-06	125.773	221.088
1-15	39.49	22.032	1.38E-08	6412.45	2.0571E-10	4.6690E-06	8.3687E-06	165.674	296.952
2-16	35.57	11.354	1.38E-08	267448	8.6413E-09	1.9670E-06	6.1624E-06	1.662	5.205
2-17	35.56	11.272	1.38E-08	318731	1.0299E-08	1.3355E-06	4.2131E-06	0.947	2.986
2-18	35.56	11.392	1.38E-08	290279	9.3791E-09	1.6862E-06	5.2634E-06	1.312	4.096
3-14	35.88	12.113	1.38E-08	151059	4.8801E-09	3.3718E-06	9.9877E-06	5.043	14.939
3-15	35.89	12.277	1.38E-08	173046	5.5906E-09	3.1024E-06	9.0693E-06	4.051	11.841
3-16	35.94	12.214	1.38E-08	143411	4.6329E-09	3.4595E-06	1.0180E-05	5.450	16.038
4-18	36.26	12.626	1.38E-08	6973.50	2.2384E-10	5.0781E-06	1.4584E-05	165.596	475.566
4-19	36.23	12.599	1.38E-08	12365.6	3.9809E-10	5.0171E-06	1.4427E-05	91.993	264.536
4-20	36.30	12.673	1.38E-08	9022.25	2.9005E-10	5.0478E-06	1.4459E-05	127.033	363.867
5-14	35.60	11.287	1.38E-08	22343.6	7.2054E-10	4.9831E-06	1.5717E-05	50.480	159.217
5-15	35.57	11.312	1.38E-08	30130.5	9.7218E-10	4.8913E-06	1.5380E-05	36.725	115.479
5-16	35.60	11.325	1.38E-08	28733.6	9.2703E-10	4.9044E-06	1.5417E-05	38.616	121.389

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #3

SOLUTION VOLUME - 98 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	46.77					
STANDARD #1	---	---	1.36E-10	4328.97					
1-10	39.77	22.667	1.36E-10	90.60	1.3920E-12	4.5442E-08	7.9730E-08	238.286	418.080
1-11	39.49	21.936	1.36E-10	93.17	1.4736E-12	4.5737E-08	8.2337E-08	226.546	407.837
1-12	39.44	21.891	1.36E-10	87.77	1.3021E-12	4.5853E-08	8.2612E-08	257.036	463.090
2-13	35.56	11.296	1.36E-10	721.33	2.1424E-11	4.3259E-08	1.3618E-07	14.739	46.399
2-14	35.57	11.346	1.36E-10	450.20	1.2813E-11	4.6497E-08	1.4577E-07	26.489	83.044
2-15	35.49	11.297	1.36E-10	461.00	1.3156E-11	4.6472E-08	1.4600E-07	25.785	81.004
3-11	35.82	12.145	1.36E-10	238.43	6.0870E-12	4.8694E-08	1.4362E-07	58.392	172.218
3-12	35.86	11.997	1.36E-10	265.80	6.9563E-12	4.8314E-08	1.4441E-07	50.696	151.536
3-13	35.95	12.216	1.36E-10	273.90	7.2135E-12	4.8097E-08	1.4154E-07	48.669	143.226
4-15	36.39	12.709	1.36E-10	78.83	1.0182E-12	4.9801E-08	1.4260E-07	357.013	1022.244
4-16	36.31	12.607	1.36E-10	87.60	1.2967E-12	4.9808E-08	1.4345E-07	280.367	807.497
4-17	36.21	12.600	1.36E-10	91.80	1.4301E-12	4.9896E-08	1.4339E-07	254.666	731.862
5-11	35.60	11.351	1.36E-10	140.40	2.9736E-12	5.0169E-08	1.5734E-07	123.148	386.227
5-12	35.62	11.379	1.36E-10	197.13	4.7753E-12	4.9462E-08	1.5483E-07	75.604	236.665
5-13	35.54	11.256	1.36E-10	213.07	5.2816E-12	4.9382E-08	1.5592E-07	68.247	215.484
STANDARD #2	---	---	1.38E-08	425959					
1-13	38.76	20.031	1.38E-08	4925.77	1.5808E-10	4.7254E-06	9.1436E-06	218.186	422.191
1-14	39.69	22.579	1.38E-08	4929.83	1.5822E-10	4.6146E-06	8.1117E-06	212.895	374.232
1-15	39.49	22.032	1.38E-08	4742.13	1.5213E-10	4.6401E-06	8.3168E-06	222.626	399.033
2-16	35.57	11.354	1.38E-08	240050	7.7764E-09	2.2736E-06	7.1229E-06	2.134	6.686
2-17	35.56	11.272	1.38E-08	297270	9.6303E-09	1.5743E-06	4.9664E-06	1.193	3.764
2-18	35.56	11.392	1.38E-08	266571	8.6357E-09	1.9498E-06	6.0864E-06	1.648	5.145
3-14	35.88	12.113	1.38E-08	121094	3.9221E-09	3.6962E-06	1.0949E-05	6.879	20.376
3-15	35.89	12.277	1.38E-08	139371	4.5143E-09	3.4737E-06	1.0155E-05	5.617	16.420
3-16	35.94	12.214	1.38E-08	117523	3.8064E-09	3.7333E-06	1.0985E-05	7.159	21.066
4-18	36.26	12.626	1.38E-08	3198.63	1.0212E-10	5.0719E-06	1.4566E-05	362.515	1041.088
4-19	36.23	12.599	1.38E-08	4694.63	1.5060E-10	5.0582E-06	1.4545E-05	245.166	705.004
4-20	36.30	12.673	1.38E-08	3435.57	1.0980E-10	5.0635E-06	1.4504E-05	336.608	964.165
5-14	35.60	11.287	1.38E-08	14378.7	4.6437E-10	5.0293E-06	1.5863E-05	79.054	249.343
5-15	35.57	11.312	1.38E-08	19524.2	6.3109E-10	4.9706E-06	1.5630E-05	57.491	180.778
5-16	35.60	11.325	1.38E-08	16901.2	5.4610E-10	4.9985E-06	1.5713E-05	66.811	210.019

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #4 SOLUTION VOLUME - 97 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	47.23					
STANDARD #1	---	---	1.36E-10	4386.80					
1-10	39.77	22.667	1.36E-10	88.77	1.3018E-12	4.5009E-08	7.8970E-08	252.359	442.773
1-11	39.49	21.936	1.36E-10	87.03	1.2473E-12	4.5346E-08	8.1634E-08	265.367	477.723
1-12	39.44	21.891	1.36E-10	88.80	1.3028E-12	4.5385E-08	8.1768E-08	254.285	458.134
2-13	35.56	11.296	1.36E-10	627.67	1.8191E-11	4.4026E-08	1.3859E-07	17.666	55.613
2-14	35.57	11.346	1.36E-10	407.90	1.1303E-11	4.6587E-08	1.4605E-07	30.084	94.315
2-15	35.49	11.297	1.36E-10	411.33	1.1411E-11	4.6652E-08	1.4656E-07	29.842	93.751
3-11	35.82	12.145	1.36E-10	218.07	5.3540E-12	4.8469E-08	1.4295E-07	66.079	194.889
3-12	35.86	11.997	1.36E-10	232.40	5.8031E-12	4.8248E-08	1.4422E-07	60.687	181.400
3-13	35.95	12.216	1.36E-10	240.37	6.0529E-12	4.8035E-08	1.4136E-07	57.926	170.469
4-15	36.39	12.709	1.36E-10	70.63	7.3334E-13	4.9397E-08	1.4144E-07	491.668	1407.807
4-16	36.31	12.607	1.36E-10	73.47	8.2235E-13	4.9473E-08	1.4249E-07	439.131	1264.762
4-17	36.21	12.600	1.36E-10	83.97	1.1514E-12	4.9489E-08	1.4222E-07	313.732	901.605
5-11	35.60	11.351	1.36E-10	128.87	2.5586E-12	4.9812E-08	1.5622E-07	142.108	445.690
5-12	35.62	11.379	1.36E-10	179.40	4.1421E-12	4.9193E-08	1.5399E-07	86.688	271.362
5-13	35.54	11.256	1.36E-10	194.67	4.6207E-12	4.9125E-08	1.5511E-07	77.602	245.023
STANDARD #2	---	---	1.38E-08	429952					
1-13	38.76	20.031	1.38E-08	4412.13	1.4011E-10	4.6833E-06	9.0623E-06	243.980	472.101
1-14	39.69	22.579	1.38E-08	4506.73	1.4315E-10	4.5726E-06	8.0378E-06	233.157	409.850
1-15	39.49	22.032	1.38E-08	4242.17	1.3466E-10	4.5986E-06	8.2425E-06	249.271	446.792
2-16	35.57	11.354	1.38E-08	221404	7.1056E-09	2.5010E-06	7.8353E-06	2.569	8.049
2-17	35.56	11.272	1.38E-08	283700	9.1053E-09	1.7544E-06	5.5348E-06	1.406	4.437
2-18	35.56	11.392	1.38E-08	247629	7.9474E-09	2.1872E-06	6.8272E-06	2.009	6.270
3-14	35.88	12.113	1.38E-08	98052.7	3.1460E-09	3.9460E-06	1.1688E-05	9.155	27.119
3-15	35.89	12.277	1.38E-08	118896	3.8151E-09	3.6971E-06	1.0808E-05	7.074	20.679
3-16	35.94	12.214	1.38E-08	99023.7	3.1772E-09	3.9279E-06	1.1558E-05	9.024	26.553
4-18	36.26	12.626	1.38E-08	2533.63	7.9814E-11	5.0283E-06	1.4441E-05	459.861	1320.651
4-19	36.23	12.599	1.38E-08	2924.50	9.2361E-11	5.0279E-06	1.4458E-05	397.355	1142.644
4-20	36.30	12.673	1.38E-08	2577.33	8.1217E-11	5.0223E-06	1.4386E-05	451.374	1292.895
5-14	35.60	11.287	1.38E-08	11190.7	3.5771E-10	5.0178E-06	1.5827E-05	102.392	322.953
5-15	35.57	11.312	1.38E-08	15355.1	4.9138E-10	4.9721E-06	1.5635E-05	73.858	232.244
5-16	35.60	11.325	1.38E-08	13110.5	4.1933E-10	4.9948E-06	1.5701E-05	86.944	273.308

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #7 SOLUTION VOLUME - 96 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/M) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	49.13					
STANDARD #1	---	---	1.36E-10	4373.87					
1-10	39.77	22.667	1.36E-10	82.17	1.0390E-12	4.4632E-08	7.8308E-08	313.549	550.131
1-11	39.49	21.936	1.36E-10	87.43	1.2044E-12	4.4893E-08	8.0818E-08	272.071	489.792
1-12	39.44	21.891	1.36E-10	81.60	1.0211E-12	4.5011E-08	8.1095E-08	321.765	579.709
2-13	35.56	11.296	1.36E-10	526.70	1.5018E-11	4.4746E-08	1.4086E-07	21.748	68.462
2-14	35.57	11.346	1.36E-10	334.07	8.9605E-12	4.6973E-08	1.4726E-07	38.264	119.960
2-15	35.49	11.297	1.36E-10	327.13	8.7423E-12	4.7160E-08	1.4815E-07	39.375	123.700
3-11	35.82	12.145	1.36E-10	188.63	4.3869E-12	4.8324E-08	1.4253E-07	80.407	237.148
3-12	35.86	11.997	1.36E-10	207.63	4.9843E-12	4.8051E-08	1.4363E-07	70.368	210.336
3-13	35.95	12.216	1.36E-10	226.63	5.5818E-12	4.7712E-08	1.4041E-07	62.393	183.613
4-15	36.39	12.709	1.36E-10	65.53	5.1573E-13	4.8966E-08	1.4021E-07	693.035	1984.385
4-16	36.31	12.607	1.36E-10	69.30	6.3429E-13	4.9031E-08	1.4122E-07	564.246	1625.112
4-17	36.21	12.600	1.36E-10	72.97	7.4970E-13	4.9125E-08	1.4118E-07	478.295	1374.529
5-11	35.60	11.351	1.36E-10	112.67	1.9981E-12	4.9505E-08	1.5526E-07	180.845	567.181
5-12	35.62	11.379	1.36E-10	147.90	3.1060E-12	4.9069E-08	1.5360E-07	115.313	360.968
5-13	35.54	11.256	1.36E-10	170.20	3.8073E-12	4.8919E-08	1.5446E-07	93.788	296.128
STANDARD #2	---	---	1.38E-08	426985					
1-13	38.76	20.031	1.38E-08	3552.93	1.1325E-10	4.6442E-06	8.9865E-06	299.317	579.179
1-14	39.69	22.579	1.38E-08	3525.03	1.1235E-10	4.5356E-06	7.9729E-06	294.670	517.978
1-15	39.49	22.032	1.38E-08	3461.07	1.1029E-10	4.5593E-06	8.1721E-06	301.759	540.871
2-16	35.57	11.354	1.38E-08	182890	5.9100E-09	2.9173E-06	9.1394E-06	3.603	11.288
2-17	35.56	11.272	1.38E-08	250695	8.1017E-09	2.1075E-06	6.6487E-06	1.899	5.990
2-18	35.56	11.392	1.38E-08	211051	6.8203E-09	2.5815E-06	8.0580E-06	2.763	8.624
3-14	35.88	12.113	1.38E-08	71852.6	2.3209E-09	4.2077E-06	1.2464E-05	13.233	39.198
3-15	35.89	12.277	1.38E-08	84379.4	2.7258E-09	4.0582E-06	1.1863E-05	10.867	31.768
3-16	35.94	12.214	1.38E-08	72621.7	2.3458E-09	4.1916E-06	1.2334E-05	13.043	38.379
4-18	36.26	12.626	1.38E-08	1744.80	5.4810E-11	4.9856E-06	1.4318E-05	663.952	1906.771
4-19	36.23	12.599	1.38E-08	2300.33	7.2766E-11	4.9832E-06	1.4330E-05	499.868	1437.433
4-20	36.30	12.673	1.38E-08	1898.93	5.9792E-11	4.9783E-06	1.4260E-05	607.738	1740.780
5-14	35.60	11.287	1.38E-08	7890.70	2.5347E-10	5.0046E-06	1.5785E-05	144.122	454.571
5-15	35.57	11.312	1.38E-08	11066.5	3.5612E-10	4.9709E-06	1.5631E-05	101.887	320.378
5-16	35.60	11.325	1.38E-08	9338.33	3.0026E-10	4.9873E-06	1.5678E-05	121.242	381.122

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #9 SOLUTION VOLUME - 95 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	45.97					
STANDARD #1	---	---	1.36E-10	4379.67					
1-10	39.77	22.667	1.36E-10	84.40	1.2060E-12	4.4112E-08	7.7396E-08	266.986	468.435
1-11	39.49	21.936	1.36E-10	84.00	1.1935E-12	4.4429E-08	7.9983E-08	271.732	489.182
1-12	39.44	21.891	1.36E-10	80.83	1.0940E-12	4.4518E-08	8.0207E-08	297.037	535.158
2-13	35.56	11.296	1.36E-10	484.40	1.3759E-11	4.4740E-08	1.4084E-07	23.736	74.720
2-14	35.57	11.346	1.36E-10	325.77	8.7807E-12	4.6549E-08	1.4593E-07	38.696	121.313
2-15	35.49	11.297	1.36E-10	307.90	8.2199E-12	4.6860E-08	1.4721E-07	41.612	130.725
3-11	35.82	12.145	1.36E-10	198.87	4.7983E-12	4.7671E-08	1.4060E-07	72.519	213.884
3-12	35.86	11.997	1.36E-10	216.07	5.3381E-12	4.7422E-08	1.4175E-07	64.845	193.828
3-13	35.95	12.216	1.36E-10	227.27	5.6895E-12	4.7176E-08	1.3883E-07	60.524	178.113
4-15	36.39	12.709	1.36E-10	66.87	6.5588E-13	4.8406E-08	1.3860E-07	538.709	1542.500
4-16	36.31	12.607	1.36E-10	70.00	7.5411E-13	4.8478E-08	1.3962E-07	469.232	1351.457
4-17	36.21	12.600	1.36E-10	71.53	8.0212E-13	4.8594E-08	1.3965E-07	442.205	1270.814
5-11	35.60	11.351	1.36E-10	110.37	2.0210E-12	4.8981E-08	1.5362E-07	176.907	554.830
5-12	35.62	11.379	1.36E-10	147.23	3.1777E-12	4.8531E-08	1.5192E-07	111.476	348.957
5-13	35.54	11.256	1.36E-10	162.70	3.6632E-12	4.8463E-08	1.5302E-07	96.566	304.900
STANDARD #2	---	---	1.38E-08	427140					
1-13	38.76	20.031	1.38E-08	3462.00	1.1038E-10	4.5968E-06	8.8947E-06	303.986	588.214
1-14	39.69	22.579	1.38E-08	3540.33	1.1291E-10	4.4882E-06	7.8895E-06	290.155	510.043
1-15	39.49	22.032	1.38E-08	3364.03	1.0721E-10	4.5128E-06	8.0888E-06	307.248	550.708
2-16	35.57	11.354	1.38E-08	166426	5.3760E-09	3.0823E-06	9.6564E-06	4.185	13.111
2-17	35.56	11.272	1.38E-08	237104	7.6597E-09	2.2474E-06	7.0898E-06	2.142	6.756
2-18	35.56	11.392	1.38E-08	193929	6.2646E-09	2.7580E-06	8.6089E-06	3.213	10.031
3-14	35.88	12.113	1.38E-08	66157.7	2.1362E-09	4.2309E-06	1.2532E-05	14.457	42.823
3-15	35.89	12.277	1.38E-08	74538.4	2.4070E-09	4.1315E-06	1.2078E-05	12.529	36.627
3-16	35.94	12.214	1.38E-08	64861.5	2.0943E-09	4.2390E-06	1.2473E-05	14.774	43.474
4-18	36.26	12.626	1.38E-08	1704.50	5.3589E-11	4.9341E-06	1.4170E-05	672.057	1930.048
4-19	36.23	12.599	1.38E-08	1950.87	6.1550E-11	4.9353E-06	1.4192E-05	585.282	1683.052
4-20	36.30	12.673	1.38E-08	1648.83	5.1791E-11	4.9293E-06	1.4119E-05	694.723	1989.936
5-14	35.60	11.287	1.38E-08	7070.70	2.2698E-10	4.9622E-06	1.5651E-05	159.575	503.311
5-15	35.57	11.312	1.38E-08	9630.93	3.0970E-10	4.9361E-06	1.5521E-05	116.336	365.814
5-16	35.60	11.325	1.38E-08	8189.73	2.6314E-10	4.9489E-06	1.5557E-05	137.281	431.542

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #15 SOLUTION VOLUME - 94 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	63.00					
STANDARD #1	---	---	1.36E-10	4396.00					
1-10	39.77	22.667	1.36E-10	96.43	1.0493E-12	4.3699E-08	7.6671E-08	303.991	533.362
1-11	39.49	21.936	1.36E-10	97.93	1.0963E-12	4.3993E-08	7.9198E-08	292.897	527.285
1-12	39.44	21.891	1.36E-10	91.37	8.9045E-13	4.4116E-08	7.9482E-08	361.632	651.536
2-13	35.56	11.296	1.36E-10	434.43	1.1658E-11	4.5030E-08	1.4176E-07	28.194	88.755
2-14	35.57	11.346	1.36E-10	298.53	7.3926E-12	4.6562E-08	1.4597E-07	45.974	144.130
2-15	35.49	11.297	1.36E-10	288.53	7.0787E-12	4.6781E-08	1.4696E-07	48.238	151.543
3-11	35.82	12.145	1.36E-10	219.87	4.9237E-12	4.7125E-08	1.3899E-07	69.861	206.046
3-12	35.86	11.997	1.36E-10	236.53	5.4466E-12	4.6884E-08	1.4014E-07	62.832	187.810
3-13	35.95	12.216	1.36E-10	248.83	5.8327E-12	4.6629E-08	1.3722E-07	58.353	171.726
4-15	36.39	12.709	1.36E-10	80.13	5.3766E-13	4.7939E-08	1.3726E-07	650.814	1863.492
4-16	36.31	12.607	1.36E-10	81.47	5.7972E-13	4.8029E-08	1.3833E-07	604.739	1741.737
4-17	36.21	12.600	1.36E-10	81.67	5.8600E-13	4.8160E-08	1.3840E-07	599.886	1723.957
5-11	35.60	11.351	1.36E-10	111.33	1.5169E-12	4.8648E-08	1.5257E-07	234.088	734.166
5-12	35.62	11.379	1.36E-10	144.00	2.5423E-12	4.8250E-08	1.5104E-07	138.529	433.643
5-13	35.54	11.256	1.36E-10	163.33	3.1491E-12	4.8139E-08	1.5199E-07	111.582	352.312
STANDARD #2	---	---	1.38E-08	424509					
1-13	38.76	20.031	1.38E-08	3227.47	1.0289E-10	4.5509E-06	8.8059E-06	322.861	624.736
1-14	39.69	22.579	1.38E-08	3173.03	1.0112E-10	4.4448E-06	7.8132E-06	320.856	564.010
1-15	39.49	22.032	1.38E-08	2965.97	9.4384E-11	4.4695E-06	8.0111E-06	345.653	619.546
2-16	35.57	11.354	1.38E-08	134702	4.3775E-09	3.4114E-06	1.0687E-05	5.688	17.820
2-17	35.56	11.272	1.38E-08	205084	6.6658E-09	2.5836E-06	8.1506E-06	2.829	8.925
2-18	35.56	11.392	1.38E-08	160351	5.2114E-09	3.1103E-06	9.7089E-06	4.356	13.598
3-14	35.88	12.113	1.38E-08	57627.0	1.8716E-09	4.2813E-06	1.2682E-05	16.697	49.460
3-15	35.89	12.277	1.38E-08	61605.6	2.0009E-09	4.2337E-06	1.2377E-05	15.444	45.149
3-16	35.94	12.214	1.38E-08	54136.1	1.7581E-09	4.3149E-06	1.2697E-05	17.915	52.714
4-18	36.26	12.626	1.38E-08	1434.43	4.4589E-11	4.8853E-06	1.4030E-05	799.730	2296.706
4-19	36.23	12.599	1.38E-08	1750.50	5.4866E-11	4.8857E-06	1.4050E-05	649.992	1869.134
4-20	36.30	12.673	1.38E-08	1424.43	4.4264E-11	4.8801E-06	1.3978E-05	804.735	2305.050
5-14	35.60	11.287	1.38E-08	5519.97	1.7742E-10	4.9279E-06	1.5543E-05	202.735	639.441
5-15	35.57	11.312	1.38E-08	7401.83	2.3861E-10	4.9099E-06	1.5439E-05	150.198	472.291
5-16	35.60	11.325	1.38E-08	6576.20	2.1176E-10	4.9154E-06	1.5452E-05	169.430	532.601

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #18 SOLUTION VOLUME - 93 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	63.00					
STANDARD #1	---	---	1.36E-10	4391.93					
1-10	39.77	22.667	1.36E-10	98.53	1.1162E-12	4.3212E-08	7.5817E-08	282.575	495.787
1-11	39.49	21.936	1.36E-10	93.67	9.6355E-13	4.3568E-08	7.8433E-08	330.046	594.161
1-12	39.44	21.891	1.36E-10	89.83	8.4291E-13	4.3662E-08	7.8664E-08	378.099	681.204
2-13	35.56	11.296	1.36E-10	429.67	1.1520E-11	4.4601E-08	1.4040E-07	28.261	88.966
2-14	35.57	11.346	1.36E-10	277.03	6.7241E-12	4.6306E-08	1.4517E-07	50.267	157.589
2-15	35.49	11.297	1.36E-10	273.90	6.6257E-12	4.6446E-08	1.4591E-07	51.167	160.743
3-11	35.82	12.145	1.36E-10	217.27	4.8466E-12	4.6651E-08	1.3759E-07	70.258	207.217
3-12	35.86	11.997	1.36E-10	240.27	5.5692E-12	4.6342E-08	1.3852E-07	60.738	181.550
3-13	35.95	12.216	1.36E-10	247.10	5.7838E-12	4.6150E-08	1.3581E-07	58.242	171.398
4-15	36.39	12.709	1.36E-10	78.13	4.7533E-13	4.7450E-08	1.3587E-07	728.655	2086.376
4-16	36.31	12.607	1.36E-10	84.10	6.6289E-13	4.7489E-08	1.3678E-07	522.917	1506.077
4-17	36.21	12.600	1.36E-10	81.50	5.8121E-13	4.7649E-08	1.3693E-07	598.416	1719.734
5-11	35.60	11.351	1.36E-10	111.43	1.5215E-12	4.8129E-08	1.5095E-07	230.894	724.151
5-12	35.62	11.379	1.36E-10	142.53	2.4986E-12	4.7752E-08	1.4948E-07	139.504	436.692
5-13	35.54	11.256	1.36E-10	159.77	3.0402E-12	4.7666E-08	1.5050E-07	114.442	361.343
STANDARD #2	---	---	1.38E-08	426825					
1-13	38.76	20.031	1.38E-08	2823.33	8.9259E-11	4.5069E-06	8.7209E-06	368.558	713.160
1-14	39.69	22.579	1.38E-08	2933.33	9.2816E-11	4.4002E-06	7.7348E-06	346.039	608.277
1-15	39.49	22.032	1.38E-08	2816.23	8.9030E-11	4.4237E-06	7.9290E-06	362.684	650.072
2-16	35.57	11.354	1.38E-08	124117	4.0115E-09	3.5062E-06	1.0984E-05	6.380	19.987
2-17	35.56	11.272	1.38E-08	193645	6.2598E-09	2.7016E-06	8.5229E-06	3.150	9.938
2-18	35.56	11.392	1.38E-08	149587	4.8351E-09	3.2121E-06	1.0027E-05	4.849	15.136
3-14	35.88	12.113	1.38E-08	53677.4	1.7337E-09	4.2847E-06	1.2692E-05	18.040	53.436
3-15	35.89	12.277	1.38E-08	57623.9	1.8613E-09	4.2382E-06	1.2390E-05	16.621	48.588
3-16	35.94	12.214	1.38E-08	50955.4	1.6457E-09	4.3088E-06	1.2679E-05	19.111	56.235
4-18	36.26	12.626	1.38E-08	1285.23	3.9523E-11	4.8351E-06	1.3886E-05	892.981	2564.510
4-19	36.23	12.599	1.38E-08	1554.00	4.8214E-11	4.8361E-06	1.3907E-05	732.155	2105.402
4-20	36.30	12.673	1.38E-08	1287.27	3.9589E-11	4.8298E-06	1.3834E-05	890.507	2550.729
5-14	35.60	11.287	1.38E-08	5164.50	1.6496E-10	4.8799E-06	1.5392E-05	215.923	681.035
5-15	35.57	11.312	1.38E-08	6923.93	2.2186E-10	4.8636E-06	1.5293E-05	160.016	503.162
5-16	35.60	11.325	1.38E-08	6154.63	1.9698E-10	4.8684E-06	1.5304E-05	180.402	567.092

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #21 SOLUTION VOLUME - 92 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	49.67					
STANDARD #1	---	---	1.36E-10	4353.10					
1-10	39.77	22.667	1.36E-10	78.13	8.9941E-13	4.2816E-08	7.5123E-08	347.480	609.666
1-11	39.49	21.936	1.36E-10	79.17	9.3228E-13	4.3109E-08	7.7607E-08	337.525	607.625
1-12	39.44	21.891	1.36E-10	74.20	7.7521E-13	4.3214E-08	7.7857E-08	406.898	733.089
2-13	35.56	11.296	1.36E-10	391.17	1.0792E-11	4.4379E-08	1.3971E-07	30.015	94.489
2-14	35.57	11.346	1.36E-10	249.30	6.3088E-12	4.5955E-08	1.4407E-07	53.170	166.688
2-15	35.49	11.297	1.36E-10	244.00	6.1414E-12	4.6118E-08	1.4488E-07	54.814	172.199
3-11	35.82	12.145	1.36E-10	196.53	4.6412E-12	4.6221E-08	1.3632E-07	72.693	214.399
3-12	35.86	11.997	1.36E-10	211.57	5.1165E-12	4.6003E-08	1.3751E-07	65.628	196.168
3-13	35.95	12.216	1.36E-10	225.37	5.5526E-12	4.5735E-08	1.3459E-07	60.121	176.929
4-15	36.39	12.709	1.36E-10	63.43	4.3485E-13	4.6954E-08	1.3445E-07	788.154	2256.742
4-16	36.31	12.607	1.36E-10	65.87	5.1196E-13	4.7031E-08	1.3546E-07	670.538	1931.247
4-17	36.21	12.600	1.36E-10	65.00	4.8447E-13	4.7170E-08	1.3556E-07	710.693	2042.396
5-11	35.60	11.351	1.36E-10	93.53	1.3861E-12	4.7659E-08	1.4947E-07	250.978	787.138
5-12	35.62	11.379	1.36E-10	120.97	2.2533E-12	4.7326E-08	1.4815E-07	153.307	479.903
5-13	35.54	11.256	1.36E-10	136.90	2.7567E-12	4.7254E-08	1.4920E-07	125.120	395.056
STANDARD #2	---	---	1.38E-08	428553					
1-13	38.76	20.031	1.38E-08	2599.70	8.2124E-11	4.4608E-06	8.6316E-06	396.480	767.188
1-14	39.69	22.579	1.38E-08	2645.63	8.3603E-11	4.3558E-06	7.6567E-06	380.298	668.498
1-15	39.49	22.032	1.38E-08	2572.37	8.1244E-11	4.3786E-06	7.8482E-06	393.391	705.112
2-16	35.57	11.354	1.38E-08	113728	3.6610E-09	3.5927E-06	1.1255E-05	7.163	22.440
2-17	35.56	11.272	1.38E-08	183573	5.9104E-09	2.7964E-06	8.8219E-06	3.454	10.895
2-18	35.56	11.392	1.38E-08	137658	4.4317E-09	3.3205E-06	1.0365E-05	5.469	17.072
3-14	35.88	12.113	1.38E-08	49631.5	1.5968E-09	4.2868E-06	1.2698E-05	19.596	58.045
3-15	35.89	12.277	1.38E-08	53691.7	1.7275E-09	4.2397E-06	1.2394E-05	17.913	52.367
3-16	35.94	12.214	1.38E-08	47346.4	1.5232E-09	4.3054E-06	1.2669E-05	20.632	60.710
4-18	36.26	12.626	1.38E-08	1131.27	3.4833E-11	4.7848E-06	1.3741E-05	1002.651	2879.466
4-19	36.23	12.599	1.38E-08	1371.30	4.2563E-11	4.7861E-06	1.3763E-05	820.771	2360.231
4-20	36.30	12.673	1.38E-08	1168.70	3.6038E-11	4.7791E-06	1.3689E-05	967.961	2772.587
5-14	35.60	11.287	1.38E-08	4676.77	1.4902E-10	4.8331E-06	1.5244E-05	236.738	746.689
5-15	35.57	11.312	1.38E-08	6259.90	2.0000E-10	4.8191E-06	1.5153E-05	175.877	553.038
5-16	35.60	11.325	1.38E-08	5651.43	1.8041E-10	4.8219E-06	1.5158E-05	195.098	613.288

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #24 SOLUTION VOLUME - 91 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.30					
STANDARD #1	---	---	1.36E-10	4316.93					
1-10	39.77	22.667	1.36E-10	81.83	8.7835E-13	4.2358E-08	7.4318E-08	352.000	617.596
1-11	39.49	21.936	1.36E-10	80.60	8.3911E-13	4.2670E-08	7.6817E-08	371.183	668.218
1-12	39.44	21.891	1.36E-10	78.03	7.5711E-13	4.2750E-08	7.7021E-08	412.154	742.559
2-13	35.56	11.296	1.36E-10	395.67	1.0891E-11	4.3862E-08	1.3808E-07	29.395	92.537
2-14	35.57	11.346	1.36E-10	253.77	6.3641E-12	4.5436E-08	1.4244E-07	52.113	163.375
2-15	35.49	11.297	1.36E-10	245.87	6.1121E-12	4.5627E-08	1.4334E-07	54.490	171.182
3-11	35.82	12.145	1.36E-10	207.67	4.8933E-12	4.5631E-08	1.3458E-07	68.067	200.755
3-12	35.86	11.997	1.36E-10	223.33	5.3929E-12	4.5407E-08	1.3572E-07	61.457	183.701
3-13	35.95	12.216	1.36E-10	231.73	5.6609E-12	4.5200E-08	1.3302E-07	58.281	171.514
4-15	36.39	12.709	1.36E-10	65.27	3.5000E-13	4.6473E-08	1.3307E-07	969.195	2775.121
4-16	36.31	12.607	1.36E-10	67.40	4.1796E-13	4.6552E-08	1.3408E-07	812.989	2341.527
4-17	36.21	12.600	1.36E-10	69.97	4.9995E-13	4.6652E-08	1.3407E-07	681.118	1957.402
5-11	35.60	11.351	1.36E-10	96.83	1.3569E-12	4.7152E-08	1.4788E-07	253.641	795.490
5-12	35.62	11.379	1.36E-10	118.83	2.0588E-12	4.6879E-08	1.4675E-07	166.203	520.270
5-13	35.54	11.256	1.36E-10	134.57	2.5610E-12	4.6809E-08	1.4780E-07	133.411	421.236
STANDARD #2	---	---	1.38E-08	424638					
1-13	38.76	20.031	1.38E-08	2635.03	8.3880E-11	4.4117E-06	8.5367E-06	383.911	742.868
1-14	39.69	22.579	1.38E-08	2690.43	8.5681E-11	4.3078E-06	7.5724E-06	366.988	645.102
1-15	39.49	22.032	1.38E-08	2609.67	8.3056E-11	4.3304E-06	7.7619E-06	380.577	682.143
2-16	35.57	11.354	1.38E-08	108539	3.5260E-09	3.6009E-06	1.1281E-05	7.454	23.353
2-17	35.56	11.272	1.38E-08	176513	5.7353E-09	2.8274E-06	8.9196E-06	3.598	11.352
2-18	35.56	11.392	1.38E-08	131049	4.2576E-09	3.3455E-06	1.0443E-05	5.735	17.903
3-14	35.88	12.113	1.38E-08	48214.1	1.5653E-09	4.2511E-06	1.2592E-05	19.824	58.719
3-15	35.89	12.277	1.38E-08	51104.5	1.6593E-09	4.2173E-06	1.2329E-05	18.552	54.235
3-16	35.94	12.214	1.38E-08	46160.4	1.4986E-09	4.2672E-06	1.2556E-05	20.785	61.160
4-18	36.26	12.626	1.38E-08	1121.47	3.4686E-11	4.7328E-06	1.3592E-05	995.979	2860.305
4-19	36.23	12.599	1.38E-08	1382.47	4.3169E-11	4.7338E-06	1.3613E-05	800.428	2301.730
4-20	36.30	12.673	1.38E-08	1188.13	3.6852E-11	4.7269E-06	1.3539E-05	936.244	2681.736
5-14	35.60	11.287	1.38E-08	4606.73	1.4797E-10	4.7809E-06	1.5079E-05	235.847	743.877
5-15	35.57	11.312	1.38E-08	6201.70	1.9981E-10	4.7668E-06	1.4989E-05	174.139	547.570
5-16	35.60	11.325	1.38E-08	5572.30	1.7935E-10	4.7699E-06	1.4994E-05	194.130	610.244

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #28 SOLUTION VOLUME - 90 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	52.93					
STANDARD #1	---	---	1.36E-10	4336.27					
1-10	39.77	22.667	1.36E-10	82.40	9.3570E-13	4.1874E-08	7.3470E-08	326.656	573.129
1-11	39.49	21.936	1.36E-10	82.17	9.2840E-13	4.2174E-08	7.5922E-08	331.578	596.919
1-12	39.44	21.891	1.36E-10	77.67	7.8552E-13	4.2272E-08	7.6159E-08	392.801	707.692
2-13	35.56	11.296	1.36E-10	353.83	9.5539E-12	4.3844E-08	1.3802E-07	33.497	105.450
2-14	35.57	11.346	1.36E-10	251.80	6.3143E-12	4.4954E-08	1.4093E-07	51.967	162.917
2-15	35.49	11.297	1.36E-10	232.00	5.6856E-12	4.5274E-08	1.4223E-07	58.123	182.597
3-11	35.82	12.145	1.36E-10	198.90	4.6347E-12	4.5219E-08	1.3337E-07	71.216	210.042
3-12	35.86	11.997	1.36E-10	215.57	5.1640E-12	4.4986E-08	1.3447E-07	63.588	190.070
3-13	35.95	12.216	1.36E-10	221.87	5.3640E-12	4.4805E-08	1.3186E-07	60.970	179.427
4-15	36.39	12.709	1.36E-10	64.18	3.5720E-13	4.5960E-08	1.3160E-07	939.179	2689.175
4-16	36.31	12.607	1.36E-10	64.83	3.7784E-13	4.6054E-08	1.3264E-07	889.700	2562.466
4-17	36.21	12.600	1.36E-10	65.80	4.0863E-13	4.6171E-08	1.3269E-07	824.729	2370.113
5-11	35.60	11.351	1.36E-10	92.97	1.2713E-12	4.6663E-08	1.4635E-07	267.918	840.268
5-12	35.62	11.379	1.36E-10	113.87	1.9349E-12	4.6407E-08	1.4527E-07	175.067	548.019
5-13	35.54	11.256	1.36E-10	137.37	2.6810E-12	4.6253E-08	1.4604E-07	125.925	397.599
STANDARD #2	---	---	1.38E-08	423064					
1-13	38.76	20.031	1.38E-08	2531.03	8.0844E-11	4.3642E-06	8.4448E-06	394.040	762.467
1-14	39.69	22.579	1.38E-08	2577.07	8.2346E-11	4.2615E-06	7.4910E-06	377.747	664.013
1-15	39.49	22.032	1.38E-08	2498.53	7.9783E-11	4.2839E-06	7.6784E-06	391.926	702.485
2-16	35.57	11.354	1.38E-08	100015	3.2611E-09	3.6532E-06	1.1445E-05	8.177	25.617
2-17	35.56	11.272	1.38E-08	167248	5.4544E-09	2.8937E-06	9.1289E-06	3.872	12.216
2-18	35.56	11.392	1.38E-08	122708	4.0014E-09	3.3975E-06	1.0605E-05	6.198	19.346
3-14	35.88	12.113	1.38E-08	45634.0	1.4870E-09	4.2313E-06	1.2534E-05	20.770	61.524
3-15	35.89	12.277	1.38E-08	47109.7	1.5351E-09	4.2136E-06	1.2318E-05	20.035	58.568
3-16	35.94	12.214	1.38E-08	43307.5	1.4111E-09	4.2503E-06	1.2507E-05	21.986	64.693
4-18	36.26	12.626	1.38E-08	1046.80	3.2423E-11	4.6816E-06	1.3445E-05	1053.939	3026.755
4-19	36.23	12.599	1.38E-08	1278.07	3.9968E-11	4.6829E-06	1.3466E-05	855.225	2459.307
4-20	36.30	12.673	1.38E-08	1106.17	3.4360E-11	4.6758E-06	1.3393E-05	993.293	2845.147
5-14	35.60	11.287	1.38E-08	4282.10	1.3797E-10	4.7318E-06	1.4925E-05	250.337	789.581
5-15	35.57	11.312	1.38E-08	5720.60	1.8490E-10	4.7195E-06	1.4840E-05	186.315	585.858
5-16	35.60	11.325	1.38E-08	5192.43	1.6767E-10	4.7215E-06	1.4842E-05	205.549	646.139

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #31 SOLUTION VOLUME - 89 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.73					
STANDARD #1	---	---	1.36E-10	4367.60					
1-10	39.77	22.667	1.36E-10	84.60	9.7321E-13	4.1398E-08	7.2633E-08	310.489	544.763
1-11	39.49	21.936	1.36E-10	79.37	8.0833E-13	4.1742E-08	7.5146E-08	376.932	678.567
1-12	39.44	21.891	1.36E-10	78.63	7.8500E-13	4.1802E-08	7.5313E-08	388.693	700.290
2-13	35.56	11.296	1.36E-10	328.43	8.6603E-12	4.3663E-08	1.3745E-07	36.801	115.851
2-14	35.57	11.346	1.36E-10	273.40	6.9254E-12	4.4245E-08	1.3871E-07	46.634	146.199
2-15	35.49	11.297	1.36E-10	237.73	5.8008E-12	4.4731E-08	1.4053E-07	56.286	176.826
3-11	35.82	12.145	1.36E-10	202.13	4.6785E-12	4.4701E-08	1.3184E-07	69.742	205.694
3-12	35.86	11.997	1.36E-10	218.60	5.1977E-12	4.4475E-08	1.3294E-07	62.457	186.689
3-13	35.95	12.216	1.36E-10	224.20	5.3743E-12	4.4304E-08	1.3038E-07	60.173	177.080
4-15	36.39	12.709	1.36E-10	64.68	3.4521E-13	4.5453E-08	1.3015E-07	961.075	2751.869
4-16	36.31	12.607	1.36E-10	67.27	4.2686E-13	4.5526E-08	1.3112E-07	778.479	2242.133
4-17	36.21	12.600	1.36E-10	70.60	5.3185E-13	4.5616E-08	1.3109E-07	626.054	1799.160
5-11	35.60	11.351	1.36E-10	99.07	1.4294E-12	4.6090E-08	1.4455E-07	235.362	738.164
5-12	35.62	11.379	1.36E-10	104.73	1.6078E-12	4.6003E-08	1.4401E-07	208.847	653.759
5-13	35.54	11.256	1.36E-10	139.77	2.7125E-12	4.5728E-08	1.4438E-07	123.052	388.529
STANDARD #2	---	---	1.38E-08	425337					
1-13	38.76	20.031	1.38E-08	2594.57	8.2448E-11	4.3152E-06	8.3500E-06	382.036	739.241
1-14	39.69	22.579	1.38E-08	2612.23	8.3021E-11	4.2139E-06	7.4074E-06	370.494	651.265
1-15	39.49	22.032	1.38E-08	2554.30	8.1141E-11	4.2359E-06	7.5923E-06	381.049	682.990
2-16	35.57	11.354	1.38E-08	95702.8	3.1037E-09	3.6666E-06	1.1487E-05	8.623	27.014
2-17	35.56	11.272	1.38E-08	162615	5.2749E-09	2.9231E-06	9.2216E-06	4.045	12.761
2-18	35.56	11.392	1.38E-08	117296	3.8044E-09	3.4273E-06	1.0698E-05	6.576	20.526
3-14	35.88	12.113	1.38E-08	44530.2	1.4432E-09	4.1992E-06	1.2438E-05	21.238	62.909
3-15	35.89	12.277	1.38E-08	45346.2	1.4697E-09	4.1890E-06	1.2246E-05	20.805	60.820
3-16	35.94	12.214	1.38E-08	41713.3	1.3518E-09	4.2232E-06	1.2427E-05	22.804	67.100
4-18	36.26	12.626	1.38E-08	1109.80	3.4268E-11	4.6289E-06	1.3294E-05	985.980	2831.588
4-19	36.23	12.599	1.38E-08	1269.47	3.9449E-11	4.6310E-06	1.3317E-05	856.872	2464.043
4-20	36.30	12.673	1.38E-08	1116.53	3.4487E-11	4.6238E-06	1.3244E-05	978.641	2803.178
5-14	35.60	11.287	1.38E-08	4251.87	1.3623E-10	4.6798E-06	1.4761E-05	250.757	790.905
5-15	35.57	11.312	1.38E-08	5573.27	1.7910E-10	4.6691E-06	1.4682E-05	190.287	598.346
5-16	35.60	11.325	1.38E-08	5023.60	1.6127E-10	4.6713E-06	1.4684E-05	211.431	664.630

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #35 SOLUTION VOLUME - 88 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.88					
STANDARD #1	---	---	1.36E-10	4390.44					
1-10	39.77	22.667	1.36E-10	82.04	8.2079E-13	4.0979E-08	7.1898E-08	364.423	639.392
1-11	39.49	21.936	1.36E-10	83.20	8.5719E-13	4.1258E-08	7.4274E-08	351.329	632.475
1-12	39.44	21.891	1.36E-10	80.68	7.7812E-13	4.1335E-08	7.4471E-08	387.746	698.584
2-13	35.56	11.296	1.36E-10	316.36	8.1728E-12	4.3338E-08	1.3643E-07	38.706	121.847
2-14	35.57	11.346	1.36E-10	259.80	6.3981E-12	4.3927E-08	1.3771E-07	50.114	157.108
2-15	35.49	11.297	1.36E-10	238.60	5.7330E-12	4.4252E-08	1.3902E-07	56.342	177.000
3-11	35.82	12.145	1.36E-10	185.40	4.0638E-12	4.4406E-08	1.3097E-07	79.761	235.244
3-12	35.86	11.997	1.36E-10	211.68	4.8883E-12	4.4079E-08	1.3176E-07	65.819	196.739
3-13	35.95	12.216	1.36E-10	211.32	4.8770E-12	4.3973E-08	1.2941E-07	65.812	193.676
4-15	36.39	12.709	1.36E-10	66.32	3.2756E-13	4.4948E-08	1.2870E-07	1001.608	2867.930
4-16	36.31	12.607	1.36E-10	71.84	5.0076E-13	4.4990E-08	1.2958E-07	655.793	1888.778
4-17	36.21	12.600	1.36E-10	69.12	4.1541E-13	4.5142E-08	1.2973E-07	793.200	2279.505
5-11	35.60	11.351	1.36E-10	88.60	1.0266E-12	4.5709E-08	1.4336E-07	324.993	1019.271
5-12	35.62	11.379	1.36E-10	91.64	1.1220E-12	4.5651E-08	1.4290E-07	296.988	929.669
5-13	35.54	11.256	1.36E-10	129.36	2.3055E-12	4.5352E-08	1.4320E-07	143.587	453.366
STANDARD #2	---	---	1.38E-08	429751					
1-13	38.76	20.031	1.38E-08	2517.32	7.9051E-11	4.2678E-06	8.2582E-06	394.072	762.529
1-14	39.69	22.579	1.38E-08	2487.88	7.8106E-11	4.1681E-06	7.3268E-06	389.523	684.715
1-15	39.49	22.032	1.38E-08	2408.80	7.5566E-11	4.1900E-06	7.5101E-06	404.729	725.433
2-16	35.57	11.354	1.38E-08	89705.7	2.8792E-09	3.7015E-06	1.1596E-05	9.384	29.398
2-17	35.56	11.272	1.38E-08	155950	5.0067E-09	2.9812E-06	9.4049E-06	4.346	13.712
2-18	35.56	11.392	1.38E-08	109810	3.5248E-09	3.4836E-06	1.0874E-05	7.214	22.518
3-14	35.88	12.113	1.38E-08	42147.5	1.3518E-09	4.1827E-06	1.2390E-05	22.585	66.900
3-15	35.89	12.277	1.38E-08	42035.8	1.3482E-09	4.1827E-06	1.2228E-05	22.645	66.201
3-16	35.94	12.214	1.38E-08	38470.4	1.2337E-09	4.2153E-06	1.2404E-05	24.940	73.387
4-18	36.26	12.626	1.38E-08	1042.76	3.1694E-11	4.5778E-06	1.3147E-05	1054.271	3027.711
4-19	36.23	12.599	1.38E-08	1196.60	3.6635E-11	4.5799E-06	1.3170E-05	912.518	2624.058
4-20	36.30	12.673	1.38E-08	1029.32	3.1263E-11	4.5729E-06	1.3098E-05	1067.683	3058.225
5-14	35.60	11.287	1.38E-08	3970.96	1.2574E-10	4.6308E-06	1.4606E-05	268.830	847.908
5-15	35.57	11.312	1.38E-08	5121.68	1.6269E-10	4.6222E-06	1.4534E-05	207.377	652.087
5-16	35.60	11.325	1.38E-08	4666.40	1.4807E-10	4.6232E-06	1.4533E-05	227.907	716.424

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #38 SOLUTION VOLUME - 87 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	49.23					
STANDARD #1	---	---	1.36E-10	4377.27					
1-10	39.77	22.667	1.36E-10	78.87	9.3138E-13	4.0480E-08	7.1023E-08	317.243	556.614
1-11	39.49	21.936	1.36E-10	78.43	9.1755E-13	4.0771E-08	7.3398E-08	324.340	583.889
1-12	39.44	21.891	1.36E-10	74.10	7.8149E-13	4.0864E-08	7.3622E-08	381.676	687.648
2-13	35.56	11.296	1.36E-10	306.83	8.0946E-12	4.2871E-08	1.3496E-07	38.659	121.700
2-14	35.57	11.346	1.36E-10	230.87	5.7077E-12	4.3659E-08	1.3687E-07	55.834	175.040
2-15	35.49	11.297	1.36E-10	223.43	5.4739E-12	4.3836E-08	1.3771E-07	58.454	183.636
3-11	35.82	12.145	1.36E-10	170.57	3.8129E-12	4.3985E-08	1.2973E-07	84.204	248.347
3-12	35.86	11.997	1.36E-10	194.27	4.5576E-12	4.3688E-08	1.3059E-07	69.970	209.145
3-13	35.95	12.216	1.36E-10	193.07	4.5199E-12	4.3591E-08	1.2828E-07	70.397	207.168
4-15	36.39	12.709	1.36E-10	61.53	3.8650E-13	4.4418E-08	1.2718E-07	838.856	2401.917
4-16	36.31	12.607	1.36E-10	67.60	5.7724E-13	4.4453E-08	1.2803E-07	562.118	1618.983
4-17	36.21	12.600	1.36E-10	66.20	5.3325E-13	4.4591E-08	1.2815E-07	610.371	1754.090
5-11	35.60	11.351	1.36E-10	86.20	1.1617E-12	4.5144E-08	1.4159E-07	283.652	889.613
5-12	35.62	11.379	1.36E-10	91.23	1.3198E-12	4.5066E-08	1.4107E-07	249.248	780.229
5-13	35.54	11.256	1.36E-10	128.03	2.4761E-12	4.4780E-08	1.4139E-07	132.004	416.793
STANDARD #2	---	---	1.38E-08	427621					
1-13	38.76	20.031	1.38E-08	2333.07	7.3712E-11	4.2209E-06	8.1675E-06	417.977	808.787
1-14	39.69	22.579	1.38E-08	2305.93	7.2836E-11	4.1223E-06	7.2463E-06	413.119	726.192
1-15	39.49	22.032	1.38E-08	2269.07	7.1646E-11	4.1435E-06	7.4268E-06	422.142	756.645
2-16	35.57	11.354	1.38E-08	84436.5	2.7236E-09	3.7115E-06	1.162BE-05	9.947	31.162
2-17	35.56	11.272	1.38E-08	150353	4.8511E-09	2.9995E-06	9.4626E-06	4.513	14.238
2-18	35.56	11.392	1.38E-08	104382	3.3674E-09	3.4968E-06	1.0915E-05	7.580	23.660
3-14	35.88	12.113	1.38E-08	39215.1	1.2641E-09	4.1643E-06	1.2335E-05	24.046	71.227
3-15	35.89	12.277	1.38E-08	38930.1	1.2549E-09	4.1662E-06	1.2179E-05	24.233	70.843
3-16	35.94	12.214	1.38E-08	35007.6	1.1283E-09	4.2024E-06	1.2366E-05	27.187	79.997
4-18	36.26	12.626	1.38E-08	952.20	2.9144E-11	4.5266E-06	1.3000E-05	1133.728	3255.900
4-19	36.23	12.599	1.38E-08	1050.13	3.2304E-11	4.5293E-06	1.3025E-05	1023.414	2942.955
4-20	36.30	12.673	1.38E-08	946.27	2.8952E-11	4.5217E-06	1.2952E-05	1139.981	3265.314
5-14	35.60	11.287	1.38E-08	3683.67	1.1730E-10	4.5810E-06	1.4449E-05	285.058	899.094
5-15	35.57	11.312	1.38E-08	4819.43	1.5396E-10	4.5726E-06	1.4378E-05	216.788	681.679
5-16	35.60	11.325	1.38E-08	4415.80	1.4093E-10	4.5731E-06	1.4375E-05	236.854	744.546

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #43 SOLUTION VOLUME - 86 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	49.90					
STANDARD #1	---	---	1.36E-10	4355.00					
1-10	39.77	22.667	1.36E-10	73.60	7.4869E-13	4.0069E-08	7.0302E-08	390.643	685.396
1-11	39.49	21.936	1.36E-10	76.35	8.3557E-13	4.0327E-08	7.2598E-08	352.284	634.194
1-12	39.44	21.891	1.36E-10	77.85	8.8295E-13	4.0364E-08	7.2722E-08	333.683	601.181
2-13	35.56	11.296	1.36E-10	288.10	7.5248E-12	4.2567E-08	1.3400E-07	41.291	129.986
2-14	35.57	11.346	1.36E-10	213.75	5.1761E-12	4.3333E-08	1.3585E-07	61.108	191.576
2-15	35.49	11.297	1.36E-10	219.45	5.3562E-12	4.3371E-08	1.3625E-07	59.106	185.682
3-11	35.82	12.185	1.36E-10	160.10	3.4813E-12	4.3588E-08	1.2856E-07	91.393	269.551
3-12	35.86	11.997	1.36E-10	178.85	4.0736E-12	4.3345E-08	1.2956E-07	77.668	232.156
3-13	35.95	12.216	1.36E-10	180.00	4.1099E-12	4.3225E-08	1.2720E-07	76.768	225.917
4-15	36.39	12.709	1.36E-10	60.30	3.2854E-13	4.3926E-08	1.2578E-07	975.924	2794.387
4-16	36.31	12.607	1.36E-10	64.20	4.5174E-13	4.3983E-08	1.2668E-07	710.681	2046.864
4-17	36.21	12.600	1.36E-10	68.35	5.8284E-13	4.4062E-08	1.2663E-07	551.813	1585.804
5-11	35.60	11.351	1.36E-10	89.20	1.2415E-12	4.4599E-08	1.3988E-07	262.214	822.379
5-12	35.42	11.379	1.36E-10	87.60	1.1910E-12	4.4591E-08	1.3958E-07	273.292	855.493
5-13	35.54	11.256	1.36E-10	126.80	2.4293E-12	4.4281E-08	1.3981E-07	133.049	420.091
STANDARD #2	---	---	1.38E-08	424511					
1-13	38.76	20.031	1.38E-08	2355.80	7.4969E-11	4.1720E-06	8.0729E-06	406.206	786.009
1-14	39.69	22.579	1.38E-08	2391.65	7.6135E-11	4.0739E-06	7.1613E-06	390.582	686.576
1-15	39.49	22.032	1.38E-08	2348.90	7.4745E-11	4.0950E-06	7.3398E-06	399.900	716.778
2-16	35.57	11.354	1.38E-08	78887.0	2.5631E-09	3.7220E-06	1.1660E-05	10.600	33.206
2-17	35.56	11.272	1.38E-08	141980	4.6144E-09	3.0434E-06	9.6012E-06	4.814	15.188
2-18	35.56	11.392	1.38E-08	98893.9	3.2136E-09	3.5076E-06	1.0949E-05	7.967	24.869
3-14	35.88	12.113	1.38E-08	37445.0	1.2158E-09	4.1323E-06	1.2240E-05	24.809	73.488
3-15	35.89	12.277	1.38E-08	37294.2	1.2109E-09	4.1328E-06	1.2082E-05	24.913	72.828
3-16	35.94	12.214	1.38E-08	32698.4	1.0615E-09	4.1760E-06	1.2288E-05	28.717	84.500
4-18	36.26	12.626	1.38E-08	961.80	2.9648E-11	4.4744E-06	1.2850E-05	1101.609	3163.656
4-19	36.23	12.599	1.38E-08	878.90	2.6952E-11	4.4790E-06	1.2880E-05	1213.010	3488.162
4-20	36.30	12.673	1.38E-08	982.50	3.0321E-11	4.4693E-06	1.2802E-05	1075.918	3081.813
5-14	35.60	11.287	1.38E-08	3675.05	1.1786E-10	4.5282E-06	1.4282E-05	280.437	884.518
5-15	35.57	11.312	1.38E-08	4730.70	1.5218E-10	4.5206E-06	1.4215E-05	216.829	681.806
5-16	35.60	11.325	1.38E-08	4184.75	1.3443E-10	4.5227E-06	1.4217E-05	245.570	771.946

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #49 SOLUTION VOLUME - 85 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	50.80					
STANDARD #1	---	---	1.36E-10	4347.72					
1-10	39.77	22.667	1.36E-10	76.72	8.2038E-13	3.9582E-08	6.9448E-08	352.175	617.902
1-11	39.49	21.936	1.36E-10	73.04	7.0391E-13	3.9897E-08	7.1824E-08	413.714	744.784
1-12	39.44	21.891	1.36E-10	75.64	7.8620E-13	3.9923E-08	7.1927E-08	370.655	667.792
2-13	35.56	11.296	1.36E-10	271.28	6.9783E-12	4.2251E-08	1.3301E-07	44.195	139.125
2-14	35.57	11.346	1.36E-10	200.00	4.7223E-12	4.2978E-08	1.3474E-07	66.432	208.265
2-15	35.49	11.297	1.36E-10	200.92	4.7514E-12	4.3065E-08	1.3529E-07	66.159	207.841
3-11	35.82	12.145	1.36E-10	143.40	2.9308E-12	4.3260E-08	1.2759E-07	107.740	317.765
3-12	35.86	11.997	1.36E-10	146.60	3.0321E-12	4.3179E-08	1.2907E-07	103.946	310.703
3-13	35.95	12.216	1.36E-10	158.00	3.3929E-12	4.2954E-08	1.2641E-07	92.408	271.944
4-15	36.39	12.709	1.36E-10	60.00	2.9119E-13	4.3428E-08	1.2435E-07	1088.618	3117.067
4-16	36.31	12.607	1.36E-10	61.76	3.4689E-13	4.3505E-08	1.2530E-07	915.441	2636.603
4-17	36.21	12.600	1.36E-10	65.72	4.7223E-13	4.3585E-08	1.2526E-07	673.703	1936.093
5-11	35.60	11.351	1.36E-10	86.00	1.1141E-12	4.4122E-08	1.3838E-07	289.075	906.624
5-12	35.62	11.379	1.36E-10	87.12	1.1495E-12	4.4086E-08	1.3800E-07	279.930	876.274
5-13	35.54	11.256	1.36E-10	125.52	2.3649E-12	4.3787E-08	1.3825E-07	135.146	426.714
STANDARD #2	---	---	1.38E-08	426821					
1-13	38.76	20.031	1.38E-08	2166.28	6.8406E-11	4.1255E-06	7.9828E-06	440.212	851.811
1-14	39.69	22.579	1.38E-08	2241.00	7.0822E-11	4.0281E-06	7.0808E-06	415.158	729.777
1-15	39.49	22.032	1.38E-08	2169.16	6.8499E-11	4.0492E-06	7.2578E-06	431.484	773.389
2-16	35.57	11.354	1.38E-08	72175.1	2.3322E-09	3.7544E-06	1.1762E-05	11.750	36.811
2-17	35.56	11.272	1.38E-08	132948	4.2974E-09	3.1119E-06	9.8171E-06	5.286	16.675
2-18	35.56	11.392	1.38E-08	91333.7	2.9517E-09	3.5525E-06	1.1089E-05	8.785	27.422
3-14	35.88	12.113	1.38E-08	34633.0	1.1182E-09	4.1159E-06	1.2192E-05	26.866	79.581
3-15	35.89	12.277	1.38E-08	35092.5	1.1331E-09	4.1099E-06	1.2015E-05	26.476	77.397
3-16	35.94	12.214	1.38E-08	30664.5	9.8992E-10	4.1506E-06	1.2213E-05	30.605	90.056
4-18	36.26	12.626	1.38E-08	888.88	2.7100E-11	4.4232E-06	1.2703E-05	1191.368	3421.433
4-19	36.23	12.599	1.38E-08	529.04	1.5464E-11	4.4306E-06	1.2741E-05	2091.278	6013.732
4-20	36.30	12.673	1.38E-08	881.00	2.6845E-11	4.4184E-06	1.2656E-05	1201.373	3441.163
5-14	35.60	11.287	1.38E-08	3342.12	1.0643E-10	4.4793E-06	1.4128E-05	307.207	968.952
5-15	35.57	11.312	1.38E-08	4308.56	1.3768E-10	4.4728E-06	1.4065E-05	237.134	745.655
5-16	35.60	11.325	1.38E-08	2573.32	8.1568E-11	4.4874E-06	1.4106E-05	401.563	1262.309

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #56 SOLUTION VOLUME - 84 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	51.36					
STANDARD #1	---	---	1.36E-10	4344.32					
1-10	39.77	22.667	1.36E-10	74.64	7.3751E-13	3.9140E-08	6.8673E-08	387.379	679.669
1-11	39.49	21.936	1.36E-10	70.44	6.0445E-13	3.9456E-08	7.1031E-08	476.471	857.760
1-12	39.44	21.891	1.36E-10	74.40	7.2990E-13	3.9470E-08	7.1111E-08	394.711	711.133
2-13	35.56	11.296	1.36E-10	264.96	6.7668E-12	4.1823E-08	1.3166E-07	45.114	142.019
2-14	35.57	11.346	1.36E-10	192.44	4.4694E-12	4.2554E-08	1.3341E-07	69.498	217.879
2-15	35.49	11.297	1.36E-10	195.40	4.5632E-12	4.2620E-08	1.3389E-07	68.175	214.175
3-11	35.82	12.145	1.36E-10	154.92	3.2808E-12	4.2639E-08	1.2576E-07	94.867	279.796
3-12	35.86	11.997	1.36E-10	143.40	2.9158E-12	4.2709E-08	1.2766E-07	106.915	319.576
3-13	35.95	12.216	1.36E-10	154.00	3.2516E-12	4.2494E-08	1.2505E-07	95.392	280.725
4-15	36.39	12.709	1.36E-10	56.16	1.5206E-13	4.2961E-08	1.2301E-07	2062.182	5904.697
4-16	36.31	12.607	1.36E-10	61.16	3.1046E-13	4.3005E-08	1.2386E-07	1011.093	2912.096
4-17	36.21	12.600	1.36E-10	65.08	4.3465E-13	4.3084E-08	1.2382E-07	723.541	2079.320
5-11	35.60	11.351	1.36E-10	74.16	7.2230E-13	4.3730E-08	1.3715E-07	441.915	1385.972
5-12	35.62	11.379	1.36E-10	86.20	1.1037E-12	4.3582E-08	1.3643E-07	288.221	902.225
5-13	35.54	11.256	1.36E-10	121.44	2.2201E-12	4.3318E-08	1.3677E-07	142.422	449.686
STANDARD #2	---	---	1.38E-08	422082					
1-13	38.76	20.031	1.38E-08	1886.84	6.0018E-11	4.0795E-06	7.8938E-06	496.132	960.015
1-14	39.69	22.579	1.38E-08	1327.28	4.1721E-11	3.9892E-06	7.0123E-06	697.917	1226.818
1-15	39.49	22.032	1.38E-08	2033.44	6.4812E-11	4.0026E-06	7.1743E-06	450.786	807.986
2-16	35.57	11.354	1.38E-08	67418.9	2.2029E-09	3.7520E-06	1.1754E-05	12.433	38.949
2-17	35.56	11.272	1.38E-08	126537	4.1360E-09	3.1275E-06	9.8664E-06	5.520	17.412
2-18	35.56	11.392	1.38E-08	85705.5	2.8008E-09	3.5596E-06	1.1111E-05	9.277	28.957
3-14	35.88	12.113	1.38E-08	33703.9	1.1004E-09	4.0732E-06	1.2065E-05	27.019	80.032
3-15	35.89	12.277	1.38E-08	33793.4	1.1033E-09	4.0711E-06	1.1901E-05	26.933	78.735
3-16	35.94	12.214	1.38E-08	29628.2	9.6713E-10	4.1091E-06	1.2091E-05	31.013	91.255
4-18	36.26	12.626	1.38E-08	858.96	2.6408E-11	4.3714E-06	1.2554E-05	1208.279	3469.999
4-19	36.23	12.599	1.38E-08	548.32	1.6250E-11	4.3782E-06	1.2590E-05	1966.626	5655.279
4-20	36.30	12.673	1.38E-08	813.88	2.4934E-11	4.3670E-06	1.2509E-05	1278.439	3661.906
5-14	35.60	11.287	1.38E-08	2745.88	8.8108E-11	4.4325E-06	1.3980E-05	367.206	1158.195
5-15	35.57	11.312	1.38E-08	3812.44	1.2298E-10	4.4249E-06	1.3914E-05	262.627	825.817
5-16	35.60	11.325	1.38E-08	2405.40	7.6975E-11	4.4361E-06	1.3945E-05	420.659	1322.337

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #63 SOLUTION VOLUME - 83 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/M) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	50.75					
STANDARD #1	---	---	1.36E-10	4367.60					
1-10	39.77	22.667	1.36E-10	64.00	4.1743E-13	3.8766E-08	6.8016E-08	677.858	1189.324
1-11	39.49	21.936	1.36E-10	67.35	5.2297E-13	3.9010E-08	7.0227E-08	544.473	980.181
1-12	39.44	21.891	1.36E-10	73.40	7.1358E-13	3.9005E-08	7.0273E-08	398.984	718.831
2-13	35.56	11.296	1.36E-10	247.95	6.2127E-12	4.1502E-08	1.3065E-07	48.761	153.499
2-14	35.57	11.346	1.36E-10	184.40	4.2106E-12	4.2130E-08	1.3208E-07	73.035	228.968
2-15	35.49	11.297	1.36E-10	194.60	4.5319E-12	4.2122E-08	1.3233E-07	67.844	213.134
3-11	35.82	12.145	1.36E-10	149.50	3.1111E-12	4.2185E-08	1.2442E-07	98.977	291.918
3-12	35.86	11.997	1.36E-10	140.85	2.8386E-12	4.2225E-08	1.2621E-07	108.580	324.554
3-13	35.95	12.216	1.36E-10	159.20	3.4167E-12	4.1936E-08	1.2341E-07	89.591	263.655
4-15	36.39	12.709	1.36E-10	53.20	7.7186E-14	4.2473E-08	1.2161E-07	4016.524	11500.61
4-16	36.31	12.607	1.36E-10	61.25	3.3080E-13	4.2487E-08	1.2237E-07	937.501	2700.141
4-17	36.21	12.600	1.36E-10	62.00	3.5443E-13	4.2597E-08	1.2241E-07	877.265	2521.092
5-11	35.60	11.351	1.36E-10	77.05	8.2857E-13	4.3175E-08	1.3541E-07	380.352	1192.892
5-12	35.62	11.379	1.36E-10	86.20	1.1168E-12	4.3059E-08	1.3479E-07	281.419	880.934
5-13	35.54	11.256	1.36E-10	114.90	2.0210E-12	4.2866E-08	1.3535E-07	154.821	488.835
STANDARD #2	---	---	1.38E-08	424264					
1-13	38.76	20.031	1.38E-08	1427.30	4.4780E-11	4.0354E-06	7.8084E-06	657.771	1272.788
1-14	39.69	22.579	1.38E-08	1159.35	3.6064E-11	3.9433E-06	6.9316E-06	798.123	1402.963
1-15	39.49	22.032	1.38E-08	1740.90	5.4982E-11	3.9578E-06	7.0940E-06	525.432	941.780
2-16	35.57	11.354	1.38E-08	61463.5	1.9978E-09	3.7729E-06	1.1820E-05	13.785	43.186
2-17	35.56	11.272	1.38E-08	117582	3.8234E-09	3.1902E-06	1.0064E-05	6.090	19.214
2-18	35.56	11.392	1.38E-08	78873.9	2.5642E-09	3.5929E-06	1.1215E-05	10.228	31.925
3-14	35.88	12.113	1.38E-08	32278.9	1.0484E-09	4.0412E-06	1.1970E-05	28.136	83.341
3-15	35.89	12.277	1.38E-08	32343.0	1.0505E-09	4.0394E-06	1.1809E-05	28.068	82.051
3-16	35.94	12.214	1.38E-08	28423.8	9.2300E-10	4.0741E-06	1.1988E-05	32.219	94.806
4-18	36.26	12.626	1.38E-08	740.25	2.2430E-11	4.3206E-06	1.2408E-05	1406.027	4037.902
4-19	36.23	12.599	1.38E-08	503.50	1.4728E-11	4.3266E-06	1.2442E-05	2144.232	6166.007
4-20	36.30	12.673	1.38E-08	707.60	2.1368E-11	4.3162E-06	1.2363E-05	1474.404	4223.220
5-14	35.60	11.287	1.38E-08	1850.70	5.8554E-11	4.3892E-06	1.3844E-05	547.149	1725.745
5-15	35.57	11.312	1.38E-08	3006.25	9.6145E-11	4.3808E-06	1.3775E-05	332.592	1045.817
5-16	35.60	11.325	1.38E-08	2356.60	7.5011E-11	4.3839E-06	1.3781E-05	426.593	1340.991

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW ROCK CORES - CS-137 KD

DAY #70 SOLUTION VOLUME - 82 mL

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.43					
STANDARD #1	---	---	1.36E-10	4340.73					
1-10	39.77	22.667	1.36E-10	69.63	4.5066E-13	3.8289E-08	6.7180E-08	620.168	1088.106
1-11	39.49	21.936	1.36E-10	70.73	4.8557E-13	3.8551E-08	6.9400E-08	579.513	1043.261
1-12	39.44	21.891	1.36E-10	67.13	3.7132E-13	3.8632E-08	6.9602E-08	759.425	1368.221
2-13	35.56	11.296	1.36E-10	272.03	6.8741E-12	4.0793E-08	1.2842E-07	43.316	136.360
2-14	35.57	11.346	1.36E-10	201.87	4.6475E-12	4.1485E-08	1.3006E-07	65.155	204.264
2-15	35.49	11.297	1.36E-10	203.27	4.6919E-12	4.1564E-08	1.3058E-07	64.662	203.139
3-11	35.82	12.145	1.36E-10	166.07	3.5113E-12	4.1552E-08	1.2255E-07	86.377	254.757
3-12	35.86	11.997	1.36E-10	163.03	3.4148E-12	4.1535E-08	1.2415E-07	88.783	265.379
3-13	35.95	12.216	1.36E-10	177.20	3.8645E-12	4.1291E-08	1.2151E-07	77.990	229.512
4-15	36.39	12.709	1.36E-10	64.30	2.8150E-13	4.1898E-08	1.1997E-07	1086.399	3110.715
4-16	36.31	12.607	1.36E-10	61.27	1.8534E-13	4.2020E-08	1.2102E-07	1654.869	4766.265
4-17	36.21	12.600	1.36E-10	64.93	3.0150E-13	4.2100E-08	1.2099E-07	1019.246	2929.119
5-11	35.60	11.351	1.36E-10	77.87	7.1216E-13	4.2692E-08	1.3389E-07	437.564	1372.328
5-12	35.62	11.379	1.36E-10	89.53	1.0822E-12	4.2551E-08	1.3320E-07	286.997	898.394
5-13	35.54	11.256	1.36E-10	111.53	1.7804E-12	4.2426E-08	1.3396E-07	173.937	549.193
STANDARD #2	---	---	1.38E-08	423432					
1-13	38.76	20.031	1.38E-08	1218.43	3.7908E-11	3.9887E-06	7.7182E-06	768.038	1486.154
1-14	39.69	22.579	1.38E-08	1330.23	4.1552E-11	3.8942E-06	6.8454E-06	684.082	1202.498
1-15	39.49	22.032	1.38E-08	1368.97	4.2815E-11	3.9136E-06	7.0147E-06	667.207	1195.897
2-16	35.57	11.354	1.38E-08	58916.2	1.9186E-09	3.7525E-06	1.1756E-05	14.276	44.726
2-17	35.56	11.272	1.38E-08	112653	3.6701E-09	3.2002E-06	1.0096E-05	6.365	20.079
2-18	35.56	11.392	1.38E-08	75208.9	2.4496E-09	3.5858E-06	1.1193E-05	10.685	33.352
3-14	35.88	12.113	1.38E-08	33422.3	1.0876E-09	3.9802E-06	1.1790E-05	26.713	79.127
3-15	35.89	12.277	1.38E-08	33571.9	1.0925E-09	3.9776E-06	1.1628E-05	26.576	77.691
3-16	35.94	12.214	1.38E-08	29532.8	9.6082E-10	4.0132E-06	1.1809E-05	30.488	89.712
4-18	36.26	12.626	1.38E-08	674.73	2.0186E-11	4.2692E-06	1.2261E-05	1543.747	4433.412
4-19	36.23	12.599	1.38E-08	608.47	1.8026E-11	4.2734E-06	1.2289E-05	1730.406	4976.000
4-20	36.30	12.673	1.38E-08	527.33	1.5382E-11	4.2660E-06	1.2219E-05	2024.416	5798.650
5-14	35.60	11.287	1.38E-08	2064.07	6.5472E-11	4.3341E-06	1.3670E-05	483.196	1524.034
5-15	35.57	11.312	1.38E-08	2678.07	8.5485E-11	4.3314E-06	1.3620E-05	369.845	1162.958
5-16	35.60	11.325	1.38E-08	2580.40	8.2302E-11	4.3288E-06	1.3607E-05	383.916	1206.836

CORE 1-GEORGIAN BAY SHALE/CORE 2-GULL RIVER LIMESTONE/CORE 3-PRECAMBRIAN/CORE 4-SHADOW LAKE SANDSTONE/CORE 5-LINDSAY LIMESTONE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #1 SOLUTION VOLUME (QUEENSTON) - 100 mL SOLUTION VOLUME (GULL RIVER LMST) - 100 mL
SOLUTION VOLUME (PRECAMBRIAN) - 36 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	63.50					
6-10	---	17.7552	1.37E-08	175628	5.6659E-09	---	6.1991E-06	---	7.986
6-11	---	17.7515	1.37E-08	232883	7.5137E-09	---	4.7744E-06	---	4.638
6-12	---	17.7530	1.37E-08	223686	7.2169E-09	---	5.0030E-06	---	5.060
CS STANDARD #1	---	---	1.37E-08	424573					
6-13	---	17.7595	1.36E-10	2247.05	7.1489E-11	---	4.9765E-08	---	5.081
6-14	---	17.7532	1.36E-10	2154.85	6.8471E-11	---	5.2112E-08	---	5.555
6-15	---	17.7581	1.36E-10	2341.90	7.4595E-11	---	4.7373E-08	---	4.636
6-16	---	9.0013	1.36E-10	3009.15	9.6440E-11	---	6.0210E-08	---	4.557
6-17	---	9.0088	1.36E-10	2977.30	9.5398E-11	---	6.1746E-08	---	4.724
6-18	---	9.0052	1.36E-10	2883.75	9.2335E-11	---	6.6430E-08	---	5.251
CS STANDARD #2	---	---	1.36E-10	4217.45					
2-19	35.54	11.158	1.30E-11	121.90	2.1917E-12	4.1664E-09	1.3271E-08	13.876	44.197
2-20	35.57	11.136	1.30E-11	183.45	4.5016E-12	3.2732E-09	1.0455E-08	5.307	16.953
2-21	35.55	11.211	1.30E-11	191.85	4.8168E-12	3.1536E-09	9.9999E-09	4.779	15.154
3-17	12.99	3.947	1.30E-11	192.80	4.8525E-12	3.0934E-09	1.0181E-08	4.653	15.314
3-18	12.94	3.949	1.30E-11	177.85	4.2914E-12	3.3192E-09	1.0876E-08	5.646	18.500
3-19	12.96	3.948	1.30E-11	174.35	4.1601E-12	3.3641E-09	1.1043E-08	5.903	19.376
CS STANDARD #3	---	---	1.30E-11	409.90					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #2 SOLUTION VOLUME (QUEENSTON) - 99 mL SOLUTION VOLUME (GULL RIVER LMST) - 99 mL
SOLUTION VOLUME (PRECAMBRIAN) - 35 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	63.50					
6-10	---	17.7552	1.37E-08	228870	7.4324E-09	---	4.7877E-06	---	4.702
6-11	---	17.7515	1.37E-08	271568	8.8194E-09	---	3.7290E-06	---	3.086
6-12	---	17.7530	1.37E-08	226082	7.3419E-09	---	4.8575E-06	---	4.829
CS STANDARD #1	---	---	1.37E-08	421816					
6-13	---	17.7595	1.36E-10	1705.60	5.3915E-11	---	6.2689E-08	---	8.487
6-14	---	17.7532	1.36E-10	2192.00	6.9885E-11	---	5.0511E-08	---	5.276
6-15	---	17.7581	1.36E-10	1792.27	5.6760E-11	---	6.0520E-08	---	7.783
6-16	---	9.0013	1.36E-10	2328.77	7.4375E-11	---	9.2855E-08	---	9.113
6-17	---	9.0088	1.36E-10	2409.13	7.7014E-11	---	8.8806E-08	---	8.417
6-18	---	9.0052	1.36E-10	2070.63	6.5900E-11	---	1.0558E-07	---	11.694
CS STANDARD #2	---	---	1.36E-10	4205.70					
2-19	35.54	11.158	1.30E-11	101.10	1.4392E-12	4.4119E-09	1.4053E-08	22.376	71.271
2-20	35.57	11.136	1.30E-11	99.13	1.3638E-12	4.4369E-09	1.4172E-08	23.747	75.851
2-21	35.55	11.211	1.30E-11	117.80	2.0784E-12	4.1668E-09	1.3213E-08	14.633	46.402
3-17	12.99	3.947	1.30E-11	110.70	1.8067E-12	4.1318E-09	1.3598E-08	16.693	54.939
3-18	12.94	3.949	1.30E-11	98.37	1.3347E-12	4.3226E-09	1.4164E-08	23.640	77.462
3-19	12.96	3.948	1.30E-11	105.67	1.6141E-12	4.2126E-09	1.3829E-08	19.050	62.534
CS STANDARD #3	---	---	1.30E-11	403.13					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #3 SOLUTION VOLUME (QUEENSTON) - 98 mL SOLUTION VOLUME (GULL RIVER LMST) - 98 mL
SOLUTION VOLUME (PRECAMBRIAN) - 34 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	57.08					
6-10	---	17.7552	1.37E-08	201707	6.5209E-09	---	5.4286E-06	---	6.077
6-11	---	17.7515	1.37E-08	195357	6.3156E-09	---	5.5851E-06	---	6.455
6-12	---	17.7530	1.37E-08	189081	6.1126E-09	---	5.7381E-06	---	6.852
CS STANDARD #1	---	---	1.37E-08	423709					
6-13	---	17.7595	1.36E-10	1484.08	4.6093E-11	---	6.7969E-08	---	10.763
6-14	---	17.7532	1.36E-10	1776.80	5.5548E-11	---	6.0842E-08	---	7.995
6-15	---	17.7581	1.36E-10	1723.52	5.3827E-11	---	6.2127E-08	---	8.425
6-16	---	9.0013	1.36E-10	2222.64	6.9949E-11	---	9.8519E-08	---	10.281
6-17	---	9.0088	1.36E-10	2017.88	6.3335E-11	---	1.0829E-07	---	12.481
6-18	---	9.0052	1.36E-10	2380.12	7.5036E-11	---	9.0893E-08	---	8.842
CS STANDARD #2	---	---	1.36E-10	4267.52					
2-19	35.54	11.158	1.30E-11	95.04	1.3934E-12	4.3846E-09	1.3966E-08	22.969	73.160
2-20	35.57	11.136	1.30E-11	90.16	1.2143E-12	4.4486E-09	1.4209E-08	26.742	85.417
2-21	35.55	11.211	1.30E-11	93.96	1.3537E-12	4.3984E-09	1.3947E-08	23.716	75.203
3-17	12.99	3.947	1.30E-11	88.60	1.1570E-12	4.2467E-09	1.3976E-08	26.792	88.175
3-18	12.94	3.949	1.30E-11	84.24	9.9695E-13	4.3207E-09	1.4158E-08	31.635	103.660
3-19	12.96	3.948	1.30E-11	88.48	1.1526E-12	4.2581E-09	1.3978E-08	26.966	88.522
CS STANDARD #3	---	---	1.30E-11	411.24					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #4 SOLUTION VOLUME (QUEENSTON) - 97 mL SOLUTION VOLUME (GULL RIVER LMST) - 97 mL
SOLUTION VOLUME (PRECAMBRIAN) - 33 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.60					
6-10	---	17.7552	1.37E-08	106552	3.4043E-09	---	7.7059E-06	---	16.522
6-11	---	17.7515	1.37E-08	145891	4.6619E-09	---	6.7661E-06	---	10.594
6-12	---	17.7530	1.37E-08	164827	5.2672E-09	---	6.3124E-06	---	8.748
CS STANDARD #1	---	---	1.37E-08	428628					
6-13	---	17.7595	1.36E-10	1352.60	4.2365E-11	---	7.0065E-08	---	12.072
6-14	---	17.7532	1.36E-10	1280.07	3.9996E-11	---	7.1863E-08	---	13.115
6-15	---	17.7581	1.36E-10	1316.87	4.1198E-11	---	7.0944E-08	---	12.570
6-16	---	9.0013	1.36E-10	1585.63	4.9977E-11	---	1.2700E-07	---	18.549
6-17	---	9.0088	1.36E-10	1869.90	5.9262E-11	---	1.1320E-07	---	13.942
6-18	---	9.0052	1.36E-10	1720.67	5.4388E-11	---	1.2044E-07	---	16.164
CS STANDARD #2	---	---	1.36E-10	4219.23					
2-19	35.54	11.158	1.30E-11	88.33	1.1940E-12	4.4145E-09	1.4061E-08	26.988	85.961
2-20	35.57	11.136	1.30E-11	80.23	8.9848E-13	4.5211E-09	1.4441E-08	36.730	117.321
2-21	35.55	11.211	1.30E-11	84.07	1.0386E-12	4.4713E-09	1.4179E-08	31.426	99.651
3-17	12.99	3.947	1.30E-11	80.50	9.0833E-13	4.2083E-09	1.3850E-08	33.818	111.299
3-18	12.94	3.949	1.30E-11	76.70	7.6971E-13	4.2730E-09	1.4002E-08	40.522	132.782
3-19	12.96	3.948	1.30E-11	76.30	7.5511E-13	4.2715E-09	1.4022E-08	41.291	135.544
CS STANDARD #3	---	---	1.30E-11	411.97					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #7 SOLUTION VOLUME (QUEENSTON) - 96 mL SOLUTION VOLUME (GULL RIVER LMST) - 96 mL
SOLUTION VOLUME (PRECAMBRIAN) - 32 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	58.27					
6-10	---	17.7552	1.37E-08	74126.9	2.3855E-09	---	8.3811E-06	---	25.645
6-11	---	17.7515	1.37E-08	87290.2	2.8095E-09	---	8.0687E-06	---	20.963
6-12	---	17.7530	1.37E-08	86004.3	2.7680E-09	---	8.0987E-06	---	21.356
CS STANDARD #1	---	---	1.37E-08	425434					
6-13	---	17.7595	1.36E-10	619.47	1.8133E-11	---	8.7288E-08	---	35.137
6-14	---	17.7532	1.36E-10	786.50	2.3530E-11	---	8.3321E-08	---	25.847
6-15	---	17.7581	1.36E-10	703.53	2.0849E-11	---	8.5283E-08	---	29.858
6-16	---	9.0013	1.36E-10	723.37	2.1490E-11	---	1.6731E-07	---	56.830
6-17	---	9.0088	1.36E-10	1016.07	3.0947E-11	---	1.5337E-07	---	36.173
6-18	---	9.0052	1.36E-10	1261.63	3.8881E-11	---	1.4184E-07	---	26.628
CS STANDARD #2	---	---	1.36E-10	4267.40					
2-19	35.54	11.158	1.30E-11	81.47	8.6337E-13	4.4913E-09	1.4306E-08	37.971	120.945
2-20	35.57	11.136	1.30E-11	76.50	6.7841E-13	4.5559E-09	1.4552E-08	49.018	156.572
2-21	35.55	11.211	1.30E-11	76.03	6.6092E-13	4.5649E-09	1.4475E-08	50.415	159.867
3-17	12.99	3.947	1.30E-11	73.27	5.5821E-13	4.1990E-09	1.3819E-08	54.907	180.704
3-18	12.94	3.949	1.30E-11	74.13	5.9022E-13	4.2044E-09	1.3777E-08	51.996	170.379
3-19	12.96	3.948	1.30E-11	73.90	5.8166E-13	4.2008E-09	1.3790E-08	52.716	173.049
CS STANDARD #3	---	---	1.30E-11	407.60					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #9 SOLUTION VOLUME (QUEENSTON) - 95 mL SOLUTION VOLUME (GULL RIVER LMST) - 95 mL
SOLUTION VOLUME (PRECAMBRIAN) - 31 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	51.47					
6-10	---	17.7552	1.37E-08	27679.6	8.9930E-10	---	9.3832E-06	---	76.160
6-11	---	17.7515	1.37E-08	36372.7	1.1823E-09	---	9.1777E-06	---	56.663
6-12	---	17.7530	1.37E-08	28427.9	9.2366E-10	---	9.3665E-06	---	74.019
CS STANDARD #1	---	---	1.37E-08	420939					
6-13	---	17.7595	1.36E-10	296.60	8.0061E-12	---	9.3800E-08	---	85.519
6-14	---	17.7532	1.36E-10	474.43	1.3814E-11	---	8.9575E-08	---	47.331
6-15	---	17.7581	1.36E-10	319.43	8.7518E-12	---	9.3261E-08	---	77.783
6-16	---	9.0013	1.36E-10	244.27	6.2970E-12	---	1.8754E-07	---	217.388
6-17	---	9.0088	1.36E-10	468.97	1.3636E-11	---	1.7678E-07	---	94.630
6-18	---	9.0052	1.36E-10	512.83	1.5068E-11	---	1.7478E-07	---	84.665
CS STANDARD #2	---	---	1.36E-10	4215.50					
2-19	35.54	11.158	1.30E-11	69.63	6.6290E-13	4.5179E-09	1.4390E-08	49.747	158.453
2-20	35.57	11.136	1.30E-11	66.50	5.4865E-13	4.5559E-09	1.4552E-08	60.613	193.605
2-21	35.55	11.211	1.30E-11	65.60	5.1579E-13	4.5705E-09	1.4493E-08	64.680	205.099
3-17	12.99	3.947	1.30E-11	65.40	5.0849E-13	4.0840E-09	1.3441E-08	58.625	192.941
3-18	12.94	3.949	1.30E-11	68.33	6.1545E-13	4.0647E-09	1.3319E-08	48.208	157.966
3-19	12.96	3.948	1.30E-11	66.53	5.4974E-13	4.0800E-09	1.3393E-08	54.172	177.829
CS STANDARD #3	---	---	1.30E-11	407.60					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #15 SOLUTION VOLUME (QUEENSTON) - 94 mL SOLUTION VOLUME (GULL RIVER LMST) - 94 mL
SOLUTION VOLUME (PRECAMBRIAN) - 30 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.13					
6-10	---	17.7552	1.37E-08	1641.53	5.1537E-11	---	9.8993E-06	---	1402.063
6-11	---	17.7515	1.37E-08	1884.97	5.9445E-11	---	9.8957E-06	---	1215.083
6-12	---	17.7530	1.37E-08	1828.00	5.7595E-11	---	9.8962E-06	---	1254.193
CS STANDARD #1	---	---	1.37E-08	421766					
6-13	---	17.7595	1.36E-10	119.37	2.1146E-12	---	9.7085E-08	---	335.121
6-14	---	17.7532	1.36E-10	104.03	1.6097E-12	---	9.7485E-08	---	442.066
6-15	---	17.7581	1.36E-10	84.57	9.6908E-13	---	9.7923E-08	---	737.570
6-16	---	9.0013	1.36E-10	98.00	1.4112E-12	---	1.9255E-07	---	995.989
6-17	---	9.0088	1.36E-10	90.13	1.1521E-12	---	1.9276E-07	---	1221.274
6-18	---	9.0052	1.36E-10	93.83	1.2739E-12	---	1.9267E-07	---	1103.955
CS STANDARD #2	---	---	1.36E-10	4186.70					
2-19	35.54	11.158	1.30E-11	74.53	7.1975E-13	4.4498E-09	1.4173E-08	45.127	143.737
2-20	35.57	11.136	1.30E-11	64.53	3.4874E-13	4.5803E-09	1.4630E-08	95.867	306.214
2-21	35.55	11.211	1.30E-11	67.87	4.7266E-13	4.5380E-09	1.4390E-08	70.081	222.225
3-17	12.99	3.947	1.30E-11	83.07	1.0366E-12	3.7852E-09	1.2457E-08	26.654	87.721
3-18	12.94	3.949	1.30E-11	70.10	5.5539E-13	3.9527E-09	1.2952E-08	51.948	170.221
3-19	12.96	3.948	1.30E-11	69.17	5.2089E-13	3.9575E-09	1.2991E-08	55.457	182.046
CS STANDARD #3	---	---	1.30E-11	405.53					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #18 SOLUTION VOLUME (QUEENSTON) - 93 mL SOLUTION VOLUME (GULL RIVER LMST) - 93 mL
SOLUTION VOLUME (PRECAMBRIAN) - 29 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.33					
6-10	---	17.7552	1.37E-08	1210.33	3.7420E-11	---	9.8042E-06	---	1912.408
6-11	---	17.7515	1.37E-08	1338.80	4.1579E-11	---	9.8032E-06	---	1720.968
6-12	---	17.7530	1.37E-08	1465.50	4.5681E-11	---	9.7995E-06	---	1565.850
CS STANDARD #1	---	---	1.37E-08	423277					
6-13	---	17.7595	1.36E-10	109.60	1.7663E-12	---	9.6302E-08	---	397.973
6-14	---	17.7532	1.36E-10	87.60	1.0632E-12	---	9.6841E-08	---	664.833
6-15	---	17.7581	1.36E-10	83.00	9.1622E-13	---	9.6919E-08	---	772.131
6-16	---	9.0013	1.36E-10	90.10	1.1431E-12	---	1.9088E-07	---	1218.880
6-17	---	9.0088	1.36E-10	80.10	8.2354E-13	---	1.9118E-07	---	1694.461
6-18	---	9.0052	1.36E-10	85.27	9.8876E-13	---	1.9102E-07	---	1410.159
CS STANDARD #2	---	---	1.36E-10	4310.00					
2-19	35.54	11.158	1.30E-11	72.33	6.5181E-13	4.4268E-09	1.4100E-08	49.573	157.899
2-20	35.57	11.136	1.30E-11	66.17	4.2875E-13	4.5030E-09	1.4383E-08	76.661	244.868
2-21	35.55	11.211	1.30E-11	64.77	3.7805E-13	4.5237E-09	1.4345E-08	87.341	276.959
3-17	12.99	3.947	1.30E-11	66.13	4.2730E-13	3.8454E-09	1.2656E-08	65.688	216.187
3-18	12.94	3.949	1.30E-11	67.77	4.8669E-13	3.8420E-09	1.2589E-08	57.622	188.814
3-19	12.96	3.948	1.30E-11	65.47	4.0340E-13	3.8616E-09	1.2676E-08	69.873	229.372
CS STANDARD #3	---	---	1.30E-11	413.33					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #21 SOLUTION VOLUME (QUEENSTON) - 92 mL SOLUTION VOLUME (GULL RIVER LMST) - 92 mL
SOLUTION VOLUME (PRECAMBRIAN) - 28 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.23					
6-10	---	17.7552	1.37E-08	1120.70	3.4624E-11	---	9.7007E-06	---	2045.063
6-11	---	17.7515	1.37E-08	1228.70	3.8127E-11	---	9.7003E-06	---	1857.077
6-12	---	17.7530	1.37E-08	1391.07	4.3394E-11	---	9.6957E-06	---	1630.922
CS STANDARD #1	---	---	1.37E-08	422429					
6-13	---	17.7595	1.36E-10	106.23	1.7209E-12	---	9.5299E-08	---	404.216
6-14	---	17.7532	1.36E-10	80.67	8.9096E-13	---	9.5922E-08	---	785.842
6-15	---	17.7581	1.36E-10	78.13	8.0849E-13	---	9.5954E-08	---	866.294
6-16	---	9.0013	1.36E-10	85.37	1.0436E-12	---	1.8897E-07	---	1321.764
6-17	---	9.0088	1.36E-10	75.90	7.3608E-13	---	1.8924E-07	---	1876.615
6-18	---	9.0052	1.36E-10	83.87	9.9487E-13	---	1.8896E-07	---	1386.372
CS STANDARD #2	---	---	1.36E-10	4241.77					
2-19	35.54	11.158	1.30E-11	67.53	5.4129E-13	4.4184E-09	1.4073E-08	59.582	189.778
2-20	35.57	11.136	1.30E-11	62.43	3.4824E-13	4.4831E-09	1.4320E-08	93.967	300.144
2-21	35.55	11.211	1.30E-11	62.37	3.4597E-13	4.4864E-09	1.4226E-08	94.654	300.147
3-17	12.99	3.947	1.30E-11	62.77	3.6111E-13	3.7323E-09	1.2283E-08	75.443	248.290
3-18	12.94	3.949	1.30E-11	62.13	3.3689E-13	3.7539E-09	1.2301E-08	81.336	266.519
3-19	12.96	3.948	1.30E-11	62.87	3.6490E-13	3.7398E-09	1.2277E-08	74.810	245.578
CS STANDARD #3	---	---	1.30E-11	396.67					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #24 SOLUTION VOLUME (QUEENSTON) - 91 mL SOLUTION VOLUME (GULL RIVER LMST) - 91 mL
SOLUTION VOLUME (PRECAMBRIAN) - 27 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.23					
6-10	---	17.7552	1.37E-08	1128.13	3.5000E-11	---	9.5950E-06	---	2001.072
6-11	---	17.7515	1.37E-08	1063.83	3.2906E-11	---	9.5985E-06	---	2129.162
6-12	---	17.7530	1.37E-08	1202.93	3.7435E-11	---	9.5945E-06	---	1870.780
CS STANDARD #1	---	---	1.37E-08	420805					
6-13	---	17.7595	1.36E-10	105.63	1.7080E-12	---	9.4272E-08	---	402.881
6-14	---	17.7532	1.36E-10	84.47	1.0183E-12	---	9.4790E-08	---	679.479
6-15	---	17.7581	1.36E-10	71.67	6.0105E-13	---	9.5056E-08	---	1154.373
6-16	---	9.0013	1.36E-10	86.27	1.0769E-12	---	1.8687E-07	---	1266.570
6-17	---	9.0088	1.36E-10	74.30	6.8678E-13	---	1.8726E-07	---	1990.202
6-18	---	9.0052	1.36E-10	83.07	9.7264E-13	---	1.8693E-07	---	1402.872
CS STANDARD #2	---	---	1.36E-10	4225.63					
2-19	35.54	11.158	1.30E-11	65.23	4.4948E-13	4.4026E-09	1.4023E-08	71.495	227.724
2-20	35.57	11.136	1.30E-11	59.40	2.3111E-13	4.4754E-09	1.4295E-08	141.331	451.496
2-21	35.55	11.211	1.30E-11	62.10	3.3224E-13	4.4424E-09	1.4087E-08	97.600	309.490
3-17	12.99	3.947	1.30E-11	60.17	2.5995E-13	3.6278E-09	1.1940E-08	101.869	335.260
3-18	12.94	3.949	1.30E-11	61.93	3.2587E-13	3.6230E-09	1.1872E-08	81.153	265.919
3-19	12.96	3.948	1.30E-11	63.87	3.9854E-13	3.5967E-09	1.1807E-08	65.874	216.242
CS STANDARD #3	---	---	1.30E-11	400.30					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #28 SOLUTION VOLUME (QUEENSTON) - 90 mL SOLUTION VOLUME (GULL RIVER LMST) - 90 mL
SOLUTION VOLUME (PRECAMBRIAN) - 26 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.70					
6-10	---	17.7552	1.37E-08	1038.73	3.1464E-11	---	9.4920E-06	---	2202.032
6-11	---	17.7515	1.37E-08	1128.00	3.4318E-11	---	9.4920E-06	---	2018.881
6-12	---	17.7530	1.37E-08	1286.07	3.9373E-11	---	9.4877E-06	---	1758.919
CS STANDARD #1	---	---	1.37E-08	428518					
6-13	---	17.7595	1.36E-10	104.37	1.5914E-12	---	9.3317E-08	---	428.019
6-14	---	17.7532	1.36E-10	84.13	9.4291E-13	---	9.3800E-08	---	726.125
6-15	---	17.7581	1.36E-10	75.93	6.8019E-13	---	9.3957E-08	---	1008.267
6-16	---	9.0013	1.36E-10	85.57	9.8905E-13	---	1.8494E-07	---	1364.860
6-17	---	9.0088	1.36E-10	76.43	6.9621E-13	---	1.8519E-07	---	1941.530
6-18	---	9.0052	1.36E-10	84.60	9.5797E-13	---	1.8490E-07	---	1408.852
CS STANDARD #2	---	---	1.36E-10	4299.50					
2-19	35.54	11.158	1.30E-11	69.93	5.4543E-13	4.3209E-09	1.3763E-08	57.825	184.183
2-20	35.57	11.136	1.30E-11	63.97	3.3198E-13	4.3912E-09	1.4026E-08	96.550	308.394
2-21	35.55	11.211	1.30E-11	67.13	4.4515E-13	4.3545E-09	1.3808E-08	71.401	226.413
3-17	12.99	3.947	1.30E-11	66.17	4.1077E-13	3.4521E-09	1.1361E-08	61.343	201.886
3-18	12.94	3.949	1.30E-11	72.37	6.3281E-13	3.4043E-09	1.1155E-08	39.268	128.672
3-19	12.96	3.948	1.30E-11	68.97	5.1105E-13	3.4325E-09	1.1268E-08	49.027	160.939
CS STANDARD #3	---	---	1.30E-11	417.70					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #31 SOLUTION VOLUME (QUEENSTON) - 89 mL SOLUTION VOLUME (GULL RIVER LMST) - 89 mL
SOLUTION VOLUME (PRECAMBRIAN) - 25 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/M) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.23					
6-10	---	17.7552	1.37E-08	1038.43	3.1853E-11	---	9.3863E-06	---	2150.945
6-11	---	17.7515	1.37E-08	1089.17	3.3493E-11	---	9.3871E-06	---	2045.774
6-12	---	17.7530	1.37E-08	1257.53	3.8936E-11	---	9.3826E-06	---	1758.927
CS STANDARD #1	---	---	1.37E-08	423794					
6-13	---	17.7595	1.36E-10	103.63	1.6495E-12	---	9.2240E-08	---	408.178
6-14	---	17.7532	1.36E-10	74.07	6.8205E-13	---	9.2937E-08	---	994.609
6-15	---	17.7581	1.36E-10	72.47	6.2969E-13	---	9.2947E-08	---	1077.440
6-16	---	9.0013	1.36E-10	78.47	8.2605E-13	---	1.8310E-07	---	1617.967
6-17	---	9.0088	1.36E-10	70.27	5.5768E-13	---	1.8331E-07	---	2399.325
6-18	---	9.0052	1.36E-10	77.67	7.9987E-13	---	1.8306E-07	---	1670.528
CS STANDARD #2	---	---	1.36E-10	4208.70					
2-19	35.54	11.158	1.30E-11	65.30	4.4964E-13	4.3058E-09	1.3715E-08	69.898	222.637
2-20	35.57	11.136	1.30E-11	62.60	3.4906E-13	4.3366E-09	1.3852E-08	90.685	289.660
2-21	35.55	11.211	1.30E-11	60.77	2.8088E-13	4.3624E-09	1.3833E-08	113.365	359.481
3-17	12.99	3.947	1.30E-11	60.97	2.8833E-13	3.3516E-09	1.1031E-08	84.847	279.241
3-18	12.94	3.949	1.30E-11	67.03	5.1408E-13	3.3048E-09	1.0829E-08	46.924	153.758
3-19	12.96	3.948	1.30E-11	63.60	3.8631E-13	3.3335E-09	1.0943E-08	62.986	206.762
CS STANDARD #3	---	---	1.30E-11	402.20					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY 835 SOLUTION VOLUME (QUEENSTON) - 88 mL SOLUTION VOLUME (GULL RIVER LMST) - 88 mL
SOLUTION VOLUME (PRECAMBRIAN) - 24 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.23					
6-10	---	17.7552	1.37E-08	979.17	3.0441E-11	---	9.2818E-06	---	2225.648
6-11	---	17.7515	1.37E-08	1006.97	3.1355E-11	---	9.2831E-06	---	2161.080
6-12	---	17.7530	1.37E-08	1201.97	3.7765E-11	---	9.2780E-06	---	1793.241
CS STANDARD #1	---	---	1.37E-08	416777					
6-13	---	17.7595	1.36E-10	98.43	1.4803E-12	---	9.1318E-08	---	450.285
6-14	---	17.7532	1.36E-10	72.20	6.2127E-13	---	9.1934E-08	---	1080.134
6-15	---	17.7581	1.36E-10	67.33	4.6178E-13	---	9.2017E-08	---	1454.512
6-16	---	9.0013	1.36E-10	75.73	7.3688E-13	---	1.8117E-07	---	1794.580
6-17	---	9.0088	1.36E-10	71.13	5.8623E-13	---	1.8122E-07	---	2256.389
6-18	---	9.0052	1.36E-10	71.33	5.9278E-13	---	1.8128E-07	---	2232.241
CS STANDARD #2	---	---	1.36E-10	4205.90					
2-19	35.54	11.158	1.30E-11	65.43	4.6185E-13	4.2532E-09	1.3547E-08	67.220	214.105
2-20	35.57	11.136	1.30E-11	58.33	1.9307E-13	4.3407E-09	1.3865E-08	164.108	524.186
2-21	35.55	11.211	1.30E-11	59.43	2.3471E-13	4.3291E-09	1.3727E-08	134.629	426.908
3-17	12.99	3.947	1.30E-11	61.87	3.2708E-13	3.2077E-09	1.0557E-08	71.585	235.594
3-18	12.94	3.949	1.30E-11	65.67	4.7094E-13	3.1836E-09	1.0432E-08	49.344	161.689
3-19	12.96	3.948	1.30E-11	66.30	5.0236E-13	3.1707E-09	1.0408E-08	46.070	151.234
CS STANDARD #3	---	---	1.30E-11	396.63					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #38 SOLUTION VOLUME (QUEENSTON) - 87 mL SOLUTION VOLUME (GULL RIVER LMST) - 87 mL
SOLUTION VOLUME (PRECAMBRIAN) - 23 mL (ALL SAMPLES - 1.0 mL)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	53.57					
6-10	---	17.7552	1.37E-08	949.37	2.9191E-11	---	9.1772E-06	---	2294.748
6-11	---	17.7515	1.37E-08	918.70	2.8192E-11	---	9.1797E-06	---	2376.768
6-12	---	17.7530	1.37E-08	1125.17	3.4920E-11	---	9.1745E-06	---	1917.719
CS STANDARD #1	---	---	1.37E-08	420469					
6-13	---	17.7595	1.36E-10	94.50	1.3317E-12	---	9.0380E-08	---	495.408
6-14	---	17.7532	1.36E-10	77.20	7.6880E-13	---	9.0790E-08	---	861.999
6-15	---	17.7581	1.36E-10	71.67	5.8888E-13	---	9.0886E-08	---	1126.547
6-16	---	9.0013	1.36E-10	75.23	7.0471E-13	---	1.7915E-07	---	1855.620
6-17	---	9.0088	1.36E-10	69.40	5.1503E-13	---	1.7925E-07	---	2540.466
6-18	---	9.0052	1.36E-10	73.07	6.3443E-13	---	1.7917E-07	---	2061.344
CS STANDARD #2	---	---	1.36E-10	4233.70					
2-19	35.54	11.158	1.30E-11	68.23	5.4467E-13	4.1771E-09	1.3305E-08	55.979	178.301
2-20	35.57	11.136	1.30E-11	58.67	1.8948E-13	4.2926E-09	1.3711E-08	165.361	528.186
2-21	35.55	11.211	1.30E-11	62.87	3.4553E-13	4.2427E-09	1.3454E-08	89.628	284.208
3-17	12.99	3.947	1.30E-11	62.37	3.2695E-13	3.0741E-09	1.0117E-08	68.631	225.871
3-18	12.94	3.949	1.30E-11	67.00	4.9897E-13	3.0441E-09	9.9749E-09	44.531	145.919
3-19	12.96	3.948	1.30E-11	66.00	4.6182E-13	3.0484E-09	1.0007E-08	48.182	158.167
CS STANDARD #3	---	---	1.30E-11	403.47					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY 843 SOLUTION VOLUME (QUEENSTON) - 86 mL SOLUTION VOLUME (GULL RIVER LMST) - 86 mL
SOLUTION VOLUME (PRECAMBRIAN) - 22 mL (GULL RIVER & PRECAMBRIAN - 2.0 mL SAMPLES)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.97					
6-10	---	17.7552	1.37E-08	953.70	2.9306E-11	---	9.0716E-06	---	2259.503
6-11	---	17.7515	1.37E-08	930.00	2.8533E-11	---	9.0740E-06	---	2321.316
6-12	---	17.7530	1.37E-08	1101.00	3.4109E-11	---	9.0695E-06	---	1940.882
CS STANDARD #1	---	---	1.37E-08	420200					
6-13	---	17.7595	1.36E-10	73.43	6.0255E-13	---	8.9825E-08	---	1088.133
6-14	---	17.7532	1.36E-10	72.10	5.5914E-13	---	8.9886E-08	---	1173.410
6-15	---	17.7581	1.36E-10	67.27	4.0149E-13	---	8.9966E-08	---	1635.639
6-16	---	9.0013	1.36E-10	76.17	6.9199E-13	---	1.7711E-07	---	1868.170
6-17	---	9.0088	1.36E-10	71.83	5.5033E-13	---	1.7715E-07	---	2349.565
6-18	---	9.0052	1.36E-10	72.77	5.8101E-13	---	1.7718E-07	---	2225.872
CS STANDARD #2	---	---	1.36E-10	4221.50					
2-19	35.54	11.158	1.30E-11	80.43	4.6220E-13	4.1565E-09	1.3239E-08	65.641	209.077
2-20	35.57	11.136	1.30E-11	68.57	2.4689E-13	4.2243E-09	1.3493E-08	124.888	398.912
2-21	35.55	11.211	1.30E-11	72.40	3.1642E-13	4.2036E-09	1.3330E-08	96.969	307.486
3-17	12.99	3.947	1.30E-11	75.17	3.6671E-13	2.9312E-09	9.6470E-09	58.346	192.022
3-18	12.94	3.949	1.30E-11	84.03	5.2755E-13	2.9051E-09	9.5194E-09	40.195	131.711
3-19	12.96	3.948	1.30E-11	81.10	4.7436E-13	2.9130E-09	9.5624E-09	44.824	147.142
CS STANDARD #3	---	---	1.30E-11	771.07					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #49 SOLUTION VOLUME (QUEENSTON) - 85 mL SOLUTION VOLUME (GULL RIVER LMST) - 84 mL
SOLUTION VOLUME (PRECAMBRIAN) - 20 mL (GULL RIVER & PRECAMBRIAN - 2.0 mL SAMPLES)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.80					
6-10	---	17.7552	1.37E-08	926.87	2.8025E-11	---	8.9670E-06	---	2335.475
6-11	---	17.7515	1.37E-08	859.30	2.5851E-11	---	8.9703E-06	---	2532.806
6-12	---	17.7530	1.37E-08	1031.33	3.1386E-11	---	8.9659E-06	---	2085.137
CS STANDARD #1	---	---	1.37E-08	425874					
6-13	---	17.7595	1.36E-10	76.70	6.7319E-13	---	8.8735E-08	---	962.135
6-14	---	17.7532	1.36E-10	77.30	6.9251E-13	---	8.8753E-08	---	935.483
6-15	---	17.7581	1.36E-10	75.37	6.3035E-13	---	8.8770E-08	---	1027.929
6-16	---	9.0013	1.36E-10	84.27	9.1702E-13	---	1.7476E-07	---	1391.032
6-17	---	9.0088	1.36E-10	85.03	9.4150E-13	---	1.7458E-07	---	1353.491
6-18	---	9.0052	1.36E-10	84.73	9.3183E-13	---	1.7466E-07	---	1368.171
CS STANDARD #2	---	---	1.36E-10	4278.10					
2-19	35.54	11.158	1.30E-11	87.63	5.7224E-13	4.0242E-09	1.2818E-08	51.330	163.495
2-20	35.57	11.136	1.30E-11	83.50	4.9799E-13	4.0448E-09	1.2920E-08	59.286	189.367
2-21	35.55	11.211	1.30E-11	84.50	5.1597E-13	4.0412E-09	1.2815E-08	57.170	181.285
3-17	12.99	3.947	1.30E-11	83.67	5.0105E-13	2.6364E-09	8.6767E-09	38.407	126.402
3-18	12.94	3.949	1.30E-11	94.87	7.0241E-13	2.6040E-09	8.5326E-09	27.060	88.670
3-19	12.96	3.948	1.30E-11	85.10	5.2676E-13	2.6371E-09	8.6567E-09	36.542	119.955
CS STANDARD #3	---	---	1.30E-11	778.90					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #56 SOLUTION VOLUME (QUEENSTON) - 84 mL SOLUTION VOLUME (GULL RIVER LMST) - 82 mL
SOLUTION VOLUME (PRECAMBRIAN) - 18 mL (GULL RIVER & PRECAMBRIAN - 2.0 mL SAMPLES)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	55.23					
6-10	---	17.7552	1.37E-08	943.90	2.8251E-11	---	8.8613E-06	---	2289.541
6-11	---	17.7515	1.37E-08	849.20	2.5240E-11	---	8.8651E-06	---	2563.722
6-12	---	17.7530	1.37E-08	1021.80	3.0727E-11	---	8.8608E-06	---	2104.897
CS STANDARD #1	---	---	1.37E-08	431010					
6-13	---	17.7595	1.36E-10	81.93	8.4591E-13	---	8.7579E-08	---	755.705
6-14	---	17.7532	1.36E-10	76.83	6.8433E-13	---	8.7714E-08	---	935.583
6-15	---	17.7581	1.36E-10	78.87	7.4897E-13	---	8.7648E-08	---	854.204
6-16	---	9.0013	1.36E-10	82.33	8.5859E-13	---	1.727BE-07	---	1468.854
6-17	---	9.0088	1.36E-10	77.73	7.1285E-13	---	1.7282E-07	---	1769.587
6-18	---	9.0052	1.36E-10	81.93	8.4591E-13	---	1.7272E-07	---	1490.354
CS STANDARD #2	---	---	1.36E-10	4347.87					
2-19	35.54	11.158	1.30E-11	90.77	6.2965E-13	3.9102E-09	1.2455E-08	45.329	144.381
2-20	35.57	11.136	1.30E-11	77.87	4.0111E-13	3.9791E-09	1.2710E-08	72.411	231.290
2-21	35.55	11.211	1.30E-11	78.77	4.1705E-13	3.9763E-09	1.2609E-08	69.593	220.680
3-17	12.99	3.947	1.30E-11	88.70	5.929BE-13	2.3553E-09	7.7516E-09	28.993	95.419
3-18	12.94	3.949	1.30E-11	92.60	6.6207E-13	2.3513E-09	7.7046E-09	25.922	84.942
3-19	12.96	3.948	1.30E-11	85.80	5.4160E-13	2.3706E-09	7.7818E-09	31.949	104.877
CS STANDARD #3	---	---	1.30E-11	789.00					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #63 SOLUTION VOLUME (QUEENSTON) - 83 mL SOLUTION VOLUME (GULL RIVER LMST) - 80 mL
SOLUTION VOLUME (PRECAMBRIAN) - 16 mL (GULL RIVER & PRECAMBRIAN - 2.0 mL SAMPLES)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/M) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	64.23					
6-10	---	17.7552	1.37E-08	934.77	2.7899E-11	---	8.7561E-06	---	2290.825
6-11	---	17.7515	1.37E-08	829.00	2.4510E-11	---	8.7600E-06	---	2608.844
6-12	---	17.7530	1.37E-08	1005.83	3.0177E-11	---	8.7557E-06	---	2117.853
CS STANDARD #1	---	---	1.37E-08	427542					
6-13	---	17.7595	1.36E-10	85.27	6.7614E-13	---	8.6645E-08	---	935.368
6-14	---	17.7532	1.36E-10	84.47	6.5043E-13	---	8.6692E-08	---	972.869
6-15	---	17.7581	1.36E-10	80.07	5.0904E-13	---	8.6759E-08	---	1244.066
6-16	---	9.0013	1.36E-10	85.97	6.9864E-13	---	1.7092E-07	---	1785.756
6-17	---	9.0088	1.36E-10	81.73	5.6238E-13	---	1.7095E-07	---	2218.805
6-18	---	9.0052	1.36E-10	83.80	6.2890E-13	---	1.7094E-07	---	1983.931
CS STANDARD #2	---	---	1.36E-10	4296.23					
2-19	35.54	11.158	1.30E-11	93.23	5.2341E-13	3.8476E-09	1.2255E-08	53.656	170.904
2-20	35.57	11.136	1.30E-11	85.83	3.8985E-13	3.8855E-09	1.2411E-08	72.749	232.369
2-21	35.55	11.211	1.30E-11	88.53	4.3859E-13	3.8727E-09	1.2280E-08	64.452	204.376
3-17	12.99	3.947	1.30E-11	93.27	5.2414E-13	2.1052E-09	6.9286E-09	29.318	96.489
3-18	12.94	3.949	1.30E-11	98.70	6.2214E-13	2.0968E-09	6.8707E-09	24.600	80.610
3-19	12.96	3.948	1.30E-11	89.33	4.5302E-13	2.1221E-09	6.9663E-09	34.193	112.243
CS STANDARD #3	---	---	1.30E-11	784.50					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

LAKEVIEW & QUEENSTON ROCK CORES - CS-137 KD

DAY #70 SOLUTION VOLUME (QUEENSTON) - 82 mL SOLUTION VOLUME (GULL RIVER LMST) - 78 mL
SOLUTION VOLUME (PRECAMBRIAN) - 14 mL (GULL RIVER & PRECAMBRIAN - 2.0 mL SAMPLES)

SAMPLE #	GEOMETRIC SURFACE AREA (cm^2)	DRY WEIGHT (g)	INITAL CONC (M)	COUNTS (cpm)	SOLUTION CONC (M)	ABSORBED CONC (S/A) (mg/cm^2)	ABSORBED CONC (D/W) (mg/g)	KF (mL/cm^2)	KD (mL/g)
BLANK	---	---	---	54.87					
6-10	---	17.7552	1.37E-08	930.93	2.8129E-11	---	8.6504E-06	---	2244.688
6-11	---	17.7515	1.37E-08	861.27	2.5893E-11	---	8.6536E-06	---	2439.501
6-12	---	17.7530	1.37E-08	979.73	2.9696E-11	---	8.6505E-06	---	2126.268
CS STANDARD #1	---	---	1.37E-08	426727					
6-13	---	17.7595	1.36E-10	78.97	7.6904E-13	---	8.5542E-08	---	811.919
6-14	---	17.7532	1.36E-10	73.53	5.9544E-13	---	8.5682E-08	---	1050.339
6-15	---	17.7581	1.36E-10	71.83	5.4120E-13	---	8.5693E-08	---	1155.764
6-16	---	9.0013	1.36E-10	80.27	8.1052E-13	---	1.6872E-07	---	1519.456
6-17	---	9.0088	1.36E-10	74.90	6.3916E-13	---	1.6880E-07	---	1927.656
6-18	---	9.0052	1.36E-10	78.23	7.4542E-13	---	1.6873E-07	---	1652.228
CS STANDARD #2	---	---	1.36E-10	4316.83					
2-19	35.54	11.158	1.30E-11	87.30	5.7152E-13	3.7369E-09	1.1903E-08	47.727	152.017
2-20	35.57	11.136	1.30E-11	77.57	4.0005E-13	3.7853E-09	1.2091E-08	69.066	220.608
2-21	35.55	11.211	1.30E-11	77.53	3.9934E-13	3.7876E-09	1.2011E-08	69.231	219.531
3-17	12.99	3.947	1.30E-11	84.67	5.2517E-13	1.8419E-09	6.0620E-09	25.601	84.254
3-18	12.94	3.949	1.30E-11	88.53	5.9320E-13	1.8390E-09	6.0259E-09	22.628	74.148
3-19	12.96	3.948	1.30E-11	81.50	4.6931E-13	1.8545E-09	6.0876E-09	28.843	94.682
CS STANDARD #3	---	---	1.30E-11	792.53					

CORE 2-GULL RIVER LIMESTONE / CORE 3-PRECAMBRIAN / CORE 6-QUEENSTON SHALE

APPENDIX C

DIFFUSION RESULTS

H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
GEORGIAN BAY SHALE - REP.#1
CORE THICKNESS (L) = 0.573 (cm)
CORE DIAMETER = 4.497 (cm)
SURFACE AREA (A) = 15.883 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	39.07	71.46	659594.0	0.96	8.8582E-05	2.4554E-05	1.0680E-09
98	42.82	1031.91	650711.0	3.96	2.6871E-03	7.6006E-04	1.0025E-08
96	42.52	1455.00	660086.5	4.96	3.7057E-03	1.0700E-03	1.1789E-08
94	39.14	2584.85	659391.0	6.96	6.5465E-03	1.9305E-03	1.6440E-08
92	38.31	3171.19	653798.5	7.96	7.9525E-03	2.3960E-03	1.6273E-08
90	39.98	5007.54	658301.0	10.96	1.2251E-02	3.7732E-03	1.6584E-08
88	45.39	5521.09	660116.0	11.96	1.3168E-02	4.1478E-03	1.0612E-08
86	56.37	6224.89	659051.0	12.96	1.4521E-02	4.6803E-03	1.5655E-08
84	48.40	6851.18	656064.0	13.96	1.5712E-02	5.1849E-03	1.3792E-08
82	48.40	7697.53	656626.5	14.96	1.7232E-02	5.8250E-03	1.7585E-08
80	31.98	9803.70	652653.0	17.96	2.1607E-02	7.4865E-03	1.6879E-08
78	36.61	11185.0	651462.5	19.96	2.4079E-02	8.5569E-03	1.4305E-08
76	39.18	12646.0	652644.5	21.96	2.6482E-02	9.6588E-03	1.3911E-08
74	34.37	14304.4	632788.5	24.96	3.0103E-02	1.1276E-02	1.3969E-08
72	40.46	15942.6	623052.5	27.02	3.3150E-02	1.2762E-02	1.7118E-08
70	34.25	17961.1	632554.0	28.96	3.5786E-02	1.4171E-02	1.5730E-08
68	32.88	20363.0	634381.0	31.96	3.9311E-02	1.6024E-02	1.3597E-08
66	38.37	22960.8	634584.0	34.96	4.3006E-02	1.8062E-02	1.4257E-08
64	40.67	27126.6	631681.0	39.96	4.9504E-02	2.1441E-02	1.5042E-08
62	40.07	30069.3	629171.5	42.96	5.3380E-02	2.3866E-02	1.4955E-08
60	49.65	33105.8	637948.0	45.96	5.6084E-02	2.5910E-02	1.0431E-08
58	40.22	39176.8	638874.0	52.96	6.4093E-02	3.0631E-02	1.3242E-08
56	33.81	44595.1	624246.0	59.96	7.2111E-02	3.5694E-02	1.3257E-08
54	39.69	51483.2	613811.5	66.96	8.1640E-02	4.1908E-02	1.5756E-08
52	34.93	60652.3	615091.5	75.00	9.2443E-02	4.9278E-02	1.5551E-08
50	36.93	68603.8	627673.5	80.96	9.8529E-02	5.4623E-02	1.1819E-08
48	33.85	74952.7	621889.5	87.96	1.0431E-01	6.0238E-02	9.5604E-09
46	35.22	81245.8	610545.5	94.96	1.1037E-01	6.6510E-02	1.0024E-08

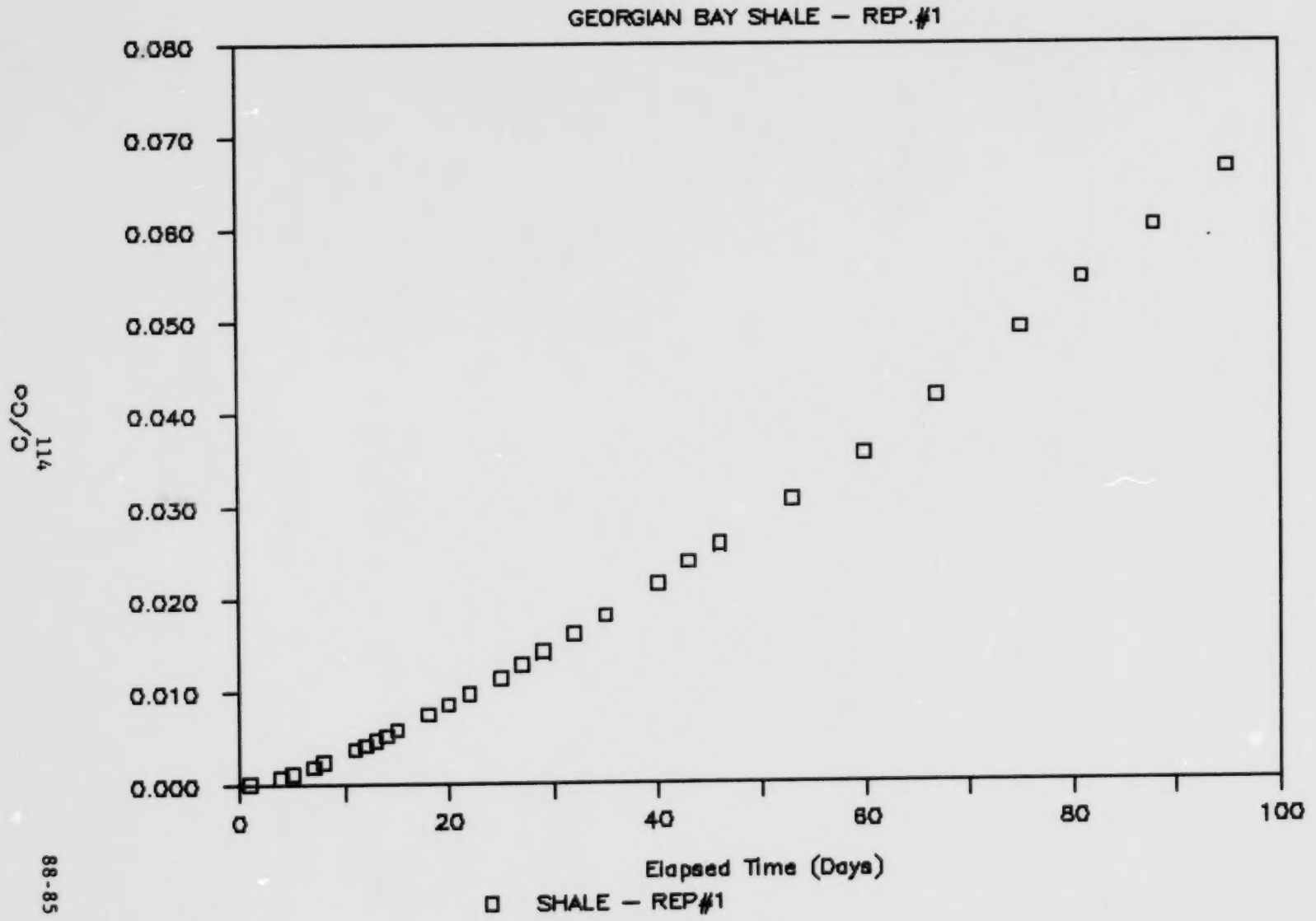
H-3 DIFFUSION
GEORGIAN BAY SHALE - REP# 1
CORE# 1(B)
CELL# 1
CORE THICKNESS = 0.570 (cm)
CORE DIAMETER = 4.497 (cm)
SURFACE AREA = 15.883 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.96	8.8582E-05
3.96	2.6871E-03
4.96	3.7057E-03
6.96	5.5465E-03
7.96	7.9525E-03
10.96	1.2251E-02
11.96	1.3168E-02
12.96	1.4521E-02
13.96	1.5712E-02
14.96	1.7232E-02
17.96	2.1607E-02
19.96	2.4079E-02
21.96	2.6482E-02
24.96	3.0103E-02
27.02	3.3150E-02
28.96	3.5786E-02
31.96	3.9311E-02
34.96	4.3006E-02
39.96	4.9504E-02
42.96	5.3380E-02
45.96	5.6084E-02
52.96	6.4093E-02
59.96	7.2111E-02
66.96	8.1640E-02
75.00	9.2443E-02
80.96	9.8529E-02
87.96	1.0431E-01
94.96	1.1037E-01

Regression Output:

Constant		1.13E-04
Std Err of Y Est		1.35E-03
R Squared		0.998238
No. of Observations		23
Degrees of Freedom		21
X Coefficient(s)	1.20E-03	
Std Err of Coef.	1.19E-05	

LAKEVIEW ROCK CORE DIFFUSION - H-3



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H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
GEORGIAN BAY SHALE - REP.#2
CORE THICKNESS (L) = 0.566 (cm)
CORE DIAMETER = 4.498 (cm)
SURFACE AREA (A) = 15.890 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	39.07	174.78	659594.0	0.96	3.6645E-04	1.0288E-04	4.4181E-09
98	42.82	1758.60	650711.0	3.96	4.6024E-03	1.3185E-03	1.6342E-08
96	42.52	2277.22	660086.5	4.96	5.7886E-03	1.6928E-03	1.3729E-08
94	39.14	3658.71	659391.0	6.96	9.1902E-03	2.7448E-03	1.9685E-08
92	38.31	4317.27	653798.5	7.96	1.0724E-02	3.2726E-03	1.7755E-08
90	39.98	6410.88	658301.0	10.96	1.5513E-02	4.8392E-03	1.8476E-08
88	45.39	7280.39	660116.0	11.96	1.7179E-02	5.4805E-03	1.9275E-08
86	56.37	8043.96	659051.0	12.96	1.8565E-02	6.0604E-03	1.6043E-08
84	48.40	8760.01	656064.0	13.96	1.9866E-02	6.6398E-03	1.5066E-08
82	48.40	9672.54	656626.5	14.96	2.1407E-02	7.3290E-03	1.7825E-08
80	31.98	11969.5	652653.0	17.96	2.6062E-02	9.1458E-03	1.7959E-08
78	36.61	13869.2	651462.5	19.96	2.9498E-02	1.0617E-02	1.9886E-08
76	39.18	15506.8	652644.5	21.96	3.2081E-02	1.1851E-02	1.4947E-08
74	34.37	17443.9	632788.5	24.96	3.6261E-02	1.3757E-02	1.6128E-08
72	40.46	19567.5	623052.5	27.02	4.0191E-02	1.5671E-02	2.2080E-08
70	34.25	21664.2	632554.0	28.96	4.2632E-02	1.7098E-02	1.4563E-08
68	32.88	24381.6	634381.0	31.96	4.6485E-02	1.9192E-02	1.4865E-08
66	38.37	27607.2	634584.0	34.96	5.1069E-02	2.1723E-02	1.7684E-08
64	40.67	32524.1	631681.0	39.96	5.8618E-02	2.5714E-02	1.7474E-08
62	40.07	36181.8	629171.5	42.96	6.3433E-02	2.8724E-02	1.8578E-08
60	49.65	39546.8	637948.0	45.96	6.6164E-02	3.0959E-02	1.0536E-08
58	40.22	46094.9	638874.0	52.96	7.4468E-02	3.6046E-02	1.3730E-08
56	33.81	53540.3	624246.0	59.96	8.5491E-02	4.2859E-02	1.8225E-08
54	39.69	61502.8	613811.5	66.96	9.6307E-02	5.0070E-02	1.7884E-08
52	34.93	71970.0	615091.5	75.00	1.0831E-01	5.8478E-02	1.7285E-08
50	36.93	80144.1	627673.5	80.96	1.1366E-01	6.3817E-02	1.0372E-08
48	33.85	87144.1	621889.5	87.96	1.1975E-01	7.0041E-02	1.0078E-08
46	35.22	95788.9	610545.5	94.96	1.2849E-01	7.8421E-02	1.4454E-08

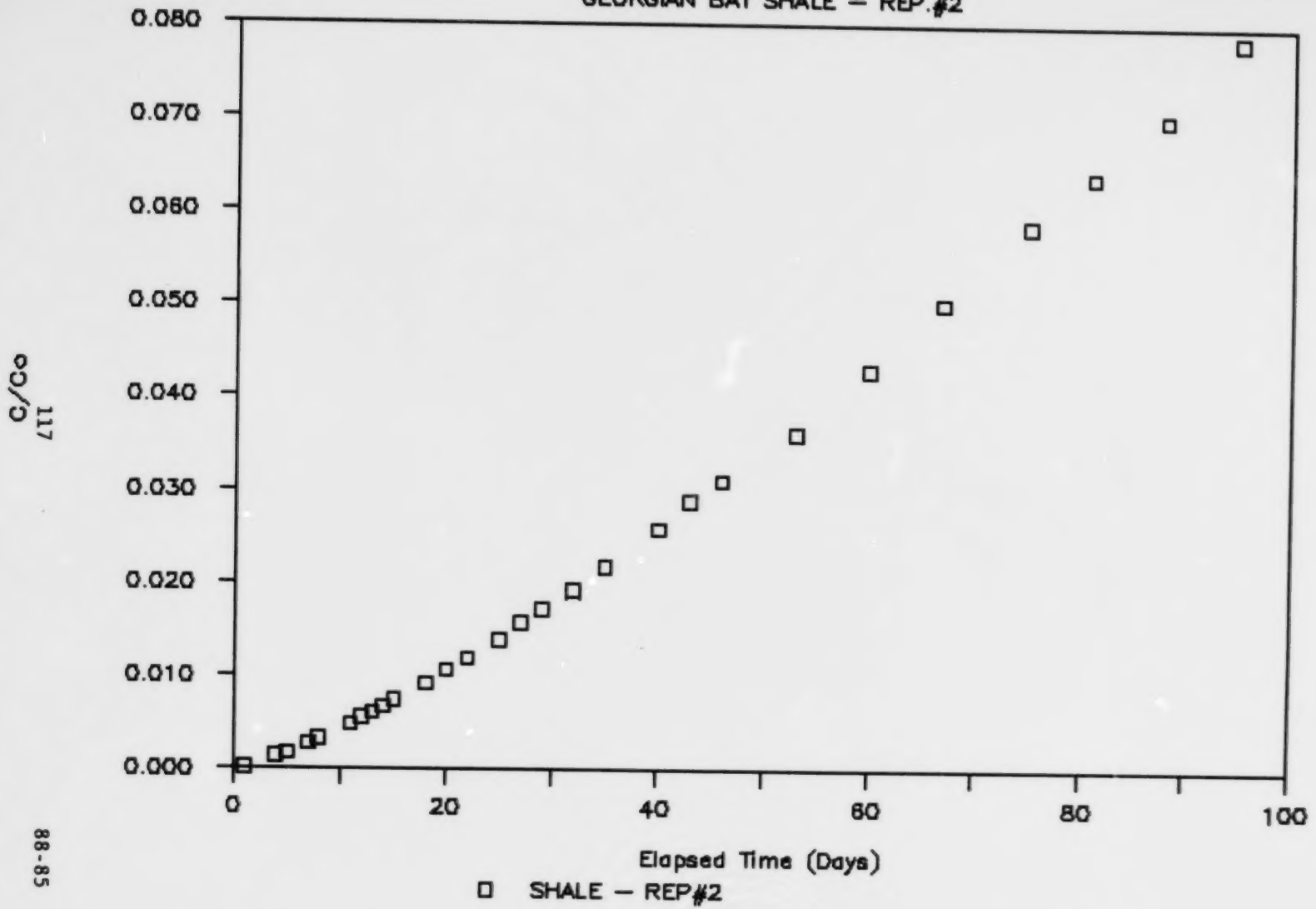
H-3 DIFFUSION
GEORGIAN BAY SHALE - REP# 2
CORE# 1(9)
CELL# 2
CORE THICKNESS = 1.566 (cm)
CORE DIAMETER = 4.498 (cm)
SURFACE AREA = 15.890 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.96	3.6645E-04
3.96	4.6024E-03
4.96	5.7686E-03
6.96	9.1902E-03
7.96	1.0724E-02
10.96	1.5513E-02
11.96	1.7179E-02
12.96	1.8565E-02
13.96	1.9566E-02
14.96	2.1407E-02
17.96	2.6362E-02
19.96	2.9498E-02
21.96	3.2081E-02
24.96	3.6261E-02
27.02	4.0191E-02
28.96	4.2632E-02
31.96	4.6485E-02
34.96	5.1069E-02
39.96	5.8618E-02
42.96	6.3433E-02
45.96	6.6164E-02
52.96	7.4468E-02
59.96	8.5491E-02
66.96	9.6307E-02
75.00	1.0831E-01
80.96	1.1366E-01
87.96	1.1975E-01
94.96	1.2849E-01

Regression Output:

Constant		
Std Err of Y Est		1.76E-03
R Squared		0.997726
No. of Observations		23
Degrees of Freedom		21
X Coefficient(s)	1.37E-03	
Std Err of Coef.	1.43E-05	

LAKEVIEW ROCK CORE DIFFUSION – H-3



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H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
LINDSAY LIMESTONE - REP.#1
CORE THICKNESS (L) = 0.358 (cm)
CORE DIAMETER = 4.506 (cm)
SURFACE AREA (A) = 15.947 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	308.75	689748.0	0.98	4.4719E-04	1.9920E-04	5.2815E-09
98	35.36	778.80	686307.5	2.00	1.1917E-03	5.4165E-04	8.4476E-09
96	33.41	1273.89	686542.5	3.00	1.9471E-03	9.0347E-04	8.7437E-09
94	40.75	1751.68	689029.0	4.00	2.6202E-03	1.2416E-03	7.7897E-09
92	37.18	3336.49	685534.5	6.98	4.9703E-03	2.4065E-03	9.1278E-09
90	38.08	3889.00	684326.5	7.98	5.6852E-03	2.8138E-03	8.2743E-09
88	34.08	4468.71	689011.0	8.98	6.3579E-03	3.2183E-03	7.7858E-09
86	33.31	5060.80	689498.0	9.98	7.0391E-03	3.6459E-03	7.8841E-09
84	35.29	5673.14	687136.0	10.98	7.7366E-03	4.1026E-03	8.0733E-09
82	39.67	7453.38	686039.0	13.98	9.9473E-03	5.4036E-03	8.5288E-09
80	35.71	8822.92	690026.5	15.98	1.1436E-02	6.3676E-03	8.6156E-09
78	34.05	10049.5	690586.0	17.98	1.2698E-02	7.2518E-03	7.3050E-09
76	35.96	11981.5	686979.5	20.98	1.4835E-02	8.6947E-03	8.2419E-09
74	36.32	13446.1	685207.0	22.98	1.6257E-02	9.7857E-03	8.2297E-09
72	38.48	14613.9	683346.5	24.98	1.7239E-02	1.0665E-02	5.6853E-09
70	35.20	16723.0	683052.5	27.98	1.9198E-02	1.2216E-02	7.5553E-09
68	37.83	18965.3	684414.0	30.98	2.1110E-02	1.3828E-02	7.3780E-09
66	34.07	21931.1	685591.5	34.98	2.3663E-02	1.5970E-02	7.3867E-09
64	39.89	24389.4	681597.5	37.98	2.5665E-02	1.7863E-02	7.7262E-09
62	34.08	27549.0	675326.5	41.96	2.8356E-02	2.0373E-02	7.8251E-09
60	37.03	33831.3	683819.0	48.98	3.3286E-02	2.4711E-02	8.1273E-09
58	39.91	39685.8	688801.0	55.98	3.7475E-02	2.8781E-02	6.9263E-09
56	36.07	45007.6	675500.0	63.98	4.1851E-02	3.3289E-02	6.3312E-09
54	37.87	49826.1	668856.5	69.98	4.5122E-02	3.7221E-02	6.3110E-09
52	36.94	57154.5	661485.0	76.98	5.0403E-02	4.3176E-02	8.7313E-09
50	38.57	62911.4	658202.0	83.98	5.3614E-02	4.7764E-02	5.3092E-09
48	35.82	71023.4	661705.5	91.98	5.7805E-02	5.3643E-02	6.0626E-09
46	37.42	77686.7	656324.0	97.98	6.1092E-02	5.9158E-02	6.3407E-09
44	38.24	87592.3	654422.5	104.98	6.6081E-02	6.6898E-02	8.2495E-09
42	35.35	95076.6	656488.5	111.98	6.8255E-02	7.2390E-02	3.5955E-09
40	37.62	102411.0	651657.5	118.98	7.0540E-02	7.8553E-02	3.7765E-09
38	38.68	112688.0	645650.5	125.98	7.4425E-02	8.7242E-02	6.4249E-09

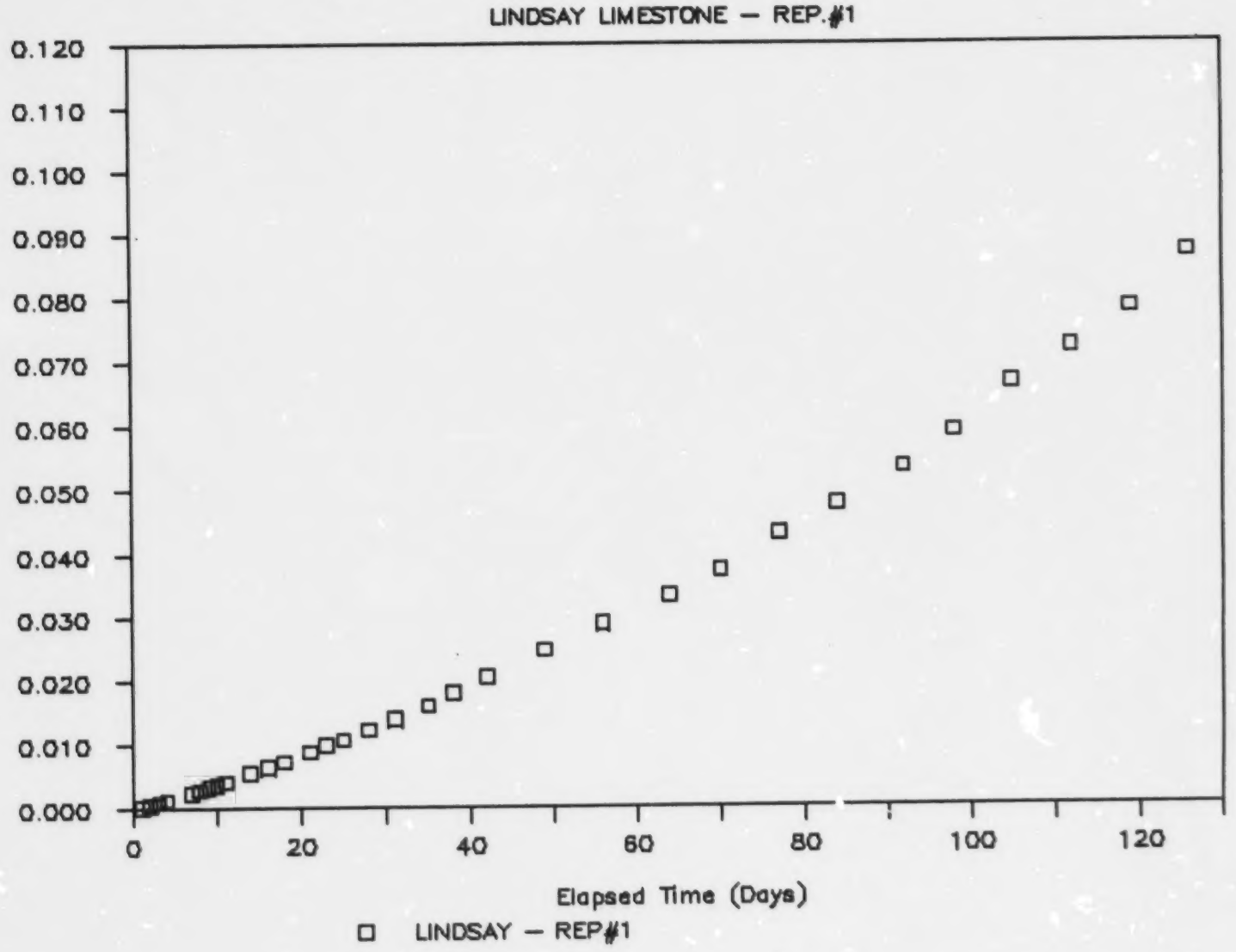
H-O DIFFUSION
LINDSAY LIMESTONE - REP# 1
CORE# 5(7)
CELL# 9
CORE THICKNESS = 0.758 (cm)
CORE DIAMETER = 4.506 (cm)
SURFACE AREA = 15.947 (cm^2)

Time (days)	DVL/CoA (cm^2)
0.98	4.4719E-04
2.00	1.1917E-03
3.00	1.9471E-03
4.00	2.6202E-03
6.98	4.9703E-03
7.98	5.6852E-03
8.98	6.3579E-03
9.98	7.0391E-03
10.98	7.7366E-03
13.98	9.9473E-03
15.98	1.1436E-02
17.98	1.2698E-02
20.98	1.4835E-02
22.98	1.6257E-02
24.98	1.7239E-02
27.98	1.9198E-02
30.98	2.1110E-02
34.98	2.3663E-02
37.98	2.5665E-02
41.96	2.8356E-02
48.98	3.3286E-02
55.98	3.7475E-02
63.98	4.1851E-02
69.98	4.5122E-02
76.98	5.0403E-02
83.98	5.3614E-02
91.98	5.7805E-02
97.98	6.1092E-02
104.98	6.6081E-02
111.98	6.8255E-02
118.98	7.0540E-02
125.98	7.4425E-02

Regression Output:

Constant	2.69E-03
Std Err of Y Est	1.30E-03
R Squared	0.996696
No. of Observations	25
Degrees of Freedom	23
X Coefficient(s)	5.92E-04
Std Err of Coef.	7.11E-06

LAKEVIEW ROCK CORE DIFFUSION - H-3



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H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
LINDSAY LIMESTONE - REP.#2
CORE THICKNESS (L) = 0.357 (cm)
CORE DIAMETER = 4.506 (cm)
SURFACE AREA (A) = 15.947 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	433.65	689748.0	0.98	6.4865E-04	2.8974E-04	7.6607E-09
98	35.36	1103.44	686307.5	2.00	1.7073E-03	7.7818E-04	1.2012E-08
96	33.41	1771.91	686542.5	3.00	2.7212E-03	1.2662E-03	1.1736E-08
94	40.75	2499.86	689029.0	4.00	3.7554E-03	1.7846E-03	1.1970E-08
92	37.18	4651.46	685534.5	6.98	6.9319E-03	3.3656E-03	1.2337E-08
90	38.08	5410.10	684326.5	7.98	7.9087E-03	3.9253E-03	1.1306E-08
88	34.08	6212.78	689011.0	8.98	8.8336E-03	4.4840E-03	1.0705E-08
86	33.31	7002.06	689498.0	9.98	9.7299E-03	5.0537E-03	1.0373E-08
84	35.29	7797.55	687136.0	10.98	1.0622E-02	5.6486E-03	1.0327E-08
82	39.67	10334.4	686039.0	13.98	1.3774E-02	7.5035E-03	1.2161E-08
80	35.71	12151.3	690026.5	15.98	1.5724E-02	8.7795E-03	1.1281E-08
78	34.05	13744.5	690586.0	17.98	1.7335E-02	9.9272E-03	9.3223E-09
76	35.96	16375.2	686979.5	20.98	2.0234E-02	1.1893E-02	1.1187E-08
74	36.32	18365.7	685207.0	22.98	2.2159E-02	1.3376E-02	1.1137E-08
72	38.48	20267.0	683346.5	24.98	2.3859E-02	1.4802E-02	9.8370E-09
70	35.20	22956.9	683052.5	27.98	2.6295E-02	1.6780E-02	9.4008E-09
68	37.83	25936.9	684414.0	30.98	2.8805E-02	1.8922E-02	9.6813E-09
66	34.07	30291.8	685591.5	34.98	3.2606E-02	2.2068E-02	1.1000E-08
64	39.89	32945.8	681597.5	37.98	3.4587E-02	2.4140E-02	7.6427E-09
62	34.08	37469.7	675326.5	41.96	3.8472E-02	2.7718E-02	1.1298E-08
60	37.03	46233.7	683819.0	48.98	4.5374E-02	3.3780E-02	1.1379E-08
58	39.91	53033.3	688801.0	55.98	4.9951E-02	3.8470E-02	7.5678E-09
56	36.07	61658.8	675500.0	63.98	5.7186E-02	4.5615E-02	1.0467E-08
54	37.87	69041.6	668856.5	69.98	6.2362E-02	5.1586E-02	9.9849E-09
52	36.94	77299.5	661485.0	76.98	6.7989E-02	5.8404E-02	9.3040E-09
50	38.57	85129.2	658202.0	83.98	7.2357E-02	6.4642E-02	7.2221E-09
48	35.82	95889.0	661705.5	91.98	7.7834E-02	7.2433E-02	7.9239E-09
46	37.42	104423.0	656324.0	97.98	8.1897E-02	7.9527E-02	7.8375E-09
44	38.24	116384.0	654422.5	104.98	8.7566E-02	8.8897E-02	9.3727E-09
42	35.35	125543.0	656488.5	111.98	8.9884E-02	9.5595E-02	3.8322E-09
40	37.62	138525.0	651657.5	118.98	9.5157E-02	1.0626E-01	8.7192E-09
38	38.68	150242.0	645650.5	125.98	9.8959E-02	1.1633E-01	6.2868E-09

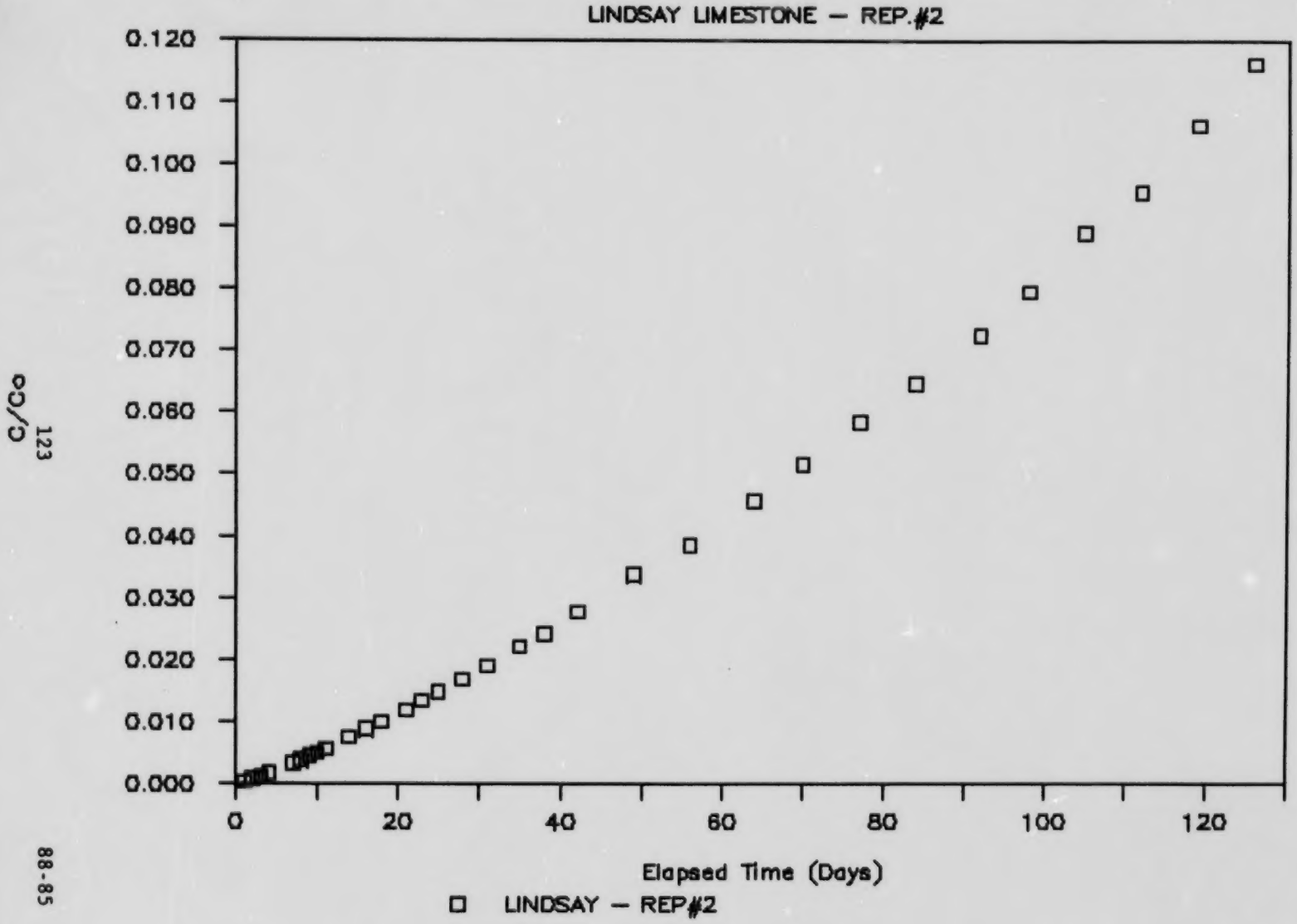
H-3 DIFFUSION
LINDSAY LIMESTONE - REP# 2
CORE# 5(8)
CELL# 10
CORE THICKNESS = 0.357 (cm)
CORE DIAMETER = 4.506 (cm)
SURFACE AREA = 15.947 (cm^2)

Time (days)	DVL/CoA (cm^2)
0.98	6.4865E-04
2.00	1.7073E-03
3.00	2.7212E-03
4.00	3.7554E-03
6.98	6.9319E-03
7.98	7.9087E-03
8.98	8.8336E-03
9.98	9.7299E-03
10.98	1.0622E-02
13.98	1.3774E-02
15.98	1.5724E-02
17.98	1.7335E-02
20.98	2.0234E-02
22.98	2.2159E-02
24.98	2.3959E-02
27.98	2.6295E-02
30.98	2.8805E-02
34.98	3.2606E-02
37.98	3.4587E-02
41.96	3.8472E-02
48.98	4.5374E-02
55.98	4.9951E-02
63.98	5.7186E-02
69.98	6.2362E-02
76.98	6.7989E-02
83.98	7.2357E-02
91.98	7.7834E-02
97.98	8.1897E-02
104.98	8.7566E-02
111.98	8.9884E-02
118.98	9.5157E-02
125.98	9.8959E-02

Regression Output:

Constant		4.33E-03
Std Err of Y Est		2.01E-03
R Squared		0.995550
No. of Observations		25
Degrees of Freedom		23
X Coefficient(s)	7.87E-04	
Std Err of Coef.	1.10E-05	

LAKEVIEW ROCK CORE DIFFUSION – H-3



H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
GULL RIVER LIMESTONE - REP.#1
CORE THICKNESS (L) = 0.332 (cm)
CORE DIAMETER = 4.507 (cm)
SURFACE AREA (A) = 15.954 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	1370.97	689748.0	0.98	2.0170E-03	9.6924E-04	2.3821E-08
98	35.36	2641.34	686307.5	2.00	3.8721E-03	1.8986E-03	2.1050E-08
96	33.41	4030.67	686542.5	3.00	5.8161E-03	2.9113E-03	2.2500E-08
94	40.75	5386.10	689029.0	4.00	7.5881E-03	3.8791E-03	2.0510E-08
92	37.18	9283.11	685534.5	6.98	1.2911E-02	6.7440E-03	2.0675E-08
90	38.08	10902.0	684326.5	7.98	1.4867E-02	7.9381E-03	2.2637E-08
88	34.08	12526.0	689011.0	8.98	1.6602E-02	9.0656E-03	2.0073E-08
86	33.31	14027.8	689498.0	9.98	1.8163E-02	1.0149E-02	1.8071E-08
84	35.29	15364.2	687136.0	10.98	1.9499E-02	1.1155E-02	1.5464E-08
82	39.67	19571.4	686039.0	13.98	2.4293E-02	1.4236E-02	1.8494E-08
80	35.71	23637.3	690026.5	15.98	2.8473E-02	1.7103E-02	2.4191E-08
78	34.05	26796.4	690586.0	17.98	3.1453E-02	1.9378E-02	1.7248E-08
76	35.96	31588.5	686979.5	20.98	3.6322E-02	2.2966E-02	1.8784E-08
74	36.32	35804.7	685207.0	22.98	4.0195E-02	2.6102E-02	2.2415E-08
72	38.48	39048.4	683346.5	24.98	4.2769E-02	2.8545E-02	1.4897E-08
70	35.20	44328.0	683052.5	27.98	4.7233E-02	3.2424E-02	1.7219E-08
68	37.83	50082.1	684414.0	30.98	5.1738E-02	3.6562E-02	1.7382E-08
66	34.07	58111.7	685591.5	34.98	5.8177E-02	4.2358E-02	1.8631E-08
64	39.89	64338.5	681597.5	37.98	6.2823E-02	4.7170E-02	1.7926E-08
62	34.08	71996.3	675326.5	41.96	6.8746E-02	5.3282E-02	1.7223E-08
60	37.03	88985.0	683819.0	48.98	8.1210E-02	6.5041E-02	2.0551E-08
58	39.91	103124.0	688801.0	55.98	9.0322E-02	7.4833E-02	1.5065E-08
56	36.07	118437.0	675500.0	63.98	1.0214E-01	8.7644E-02	1.7094E-08
54	37.87	131751.0	668856.5	69.98	1.1065E-01	9.8467E-02	1.6424E-08
52	36.94	144957.0	661485.0	76.98	1.1854E-01	1.0955E-01	1.3049E-08
50	38.57	162031.0	658202.0	83.98	1.2805E-01	1.2306E-01	1.5715E-08
48	35.82	180625.0	661705.5	91.98	1.3631E-01	1.3646E-01	1.1956E-08
46	37.42	195964.0	656324.0	97.98	1.4289E-01	1.4927E-01	1.2688E-08
44	38.24	223812.0	654422.5	104.98	1.5656E-01	1.7098E-01	2.2598E-08
42	35.35	240315.0	656488.5	111.98	1.5996E-01	1.8301E-01	5.6234E-09
40	37.62	254937.0	651657.5	118.98	1.6281E-01	1.9559E-01	4.7136E-09
38	38.68	279255.0	645650.5	125.98	1.7100E-01	2.1624E-01	1.3544E-08

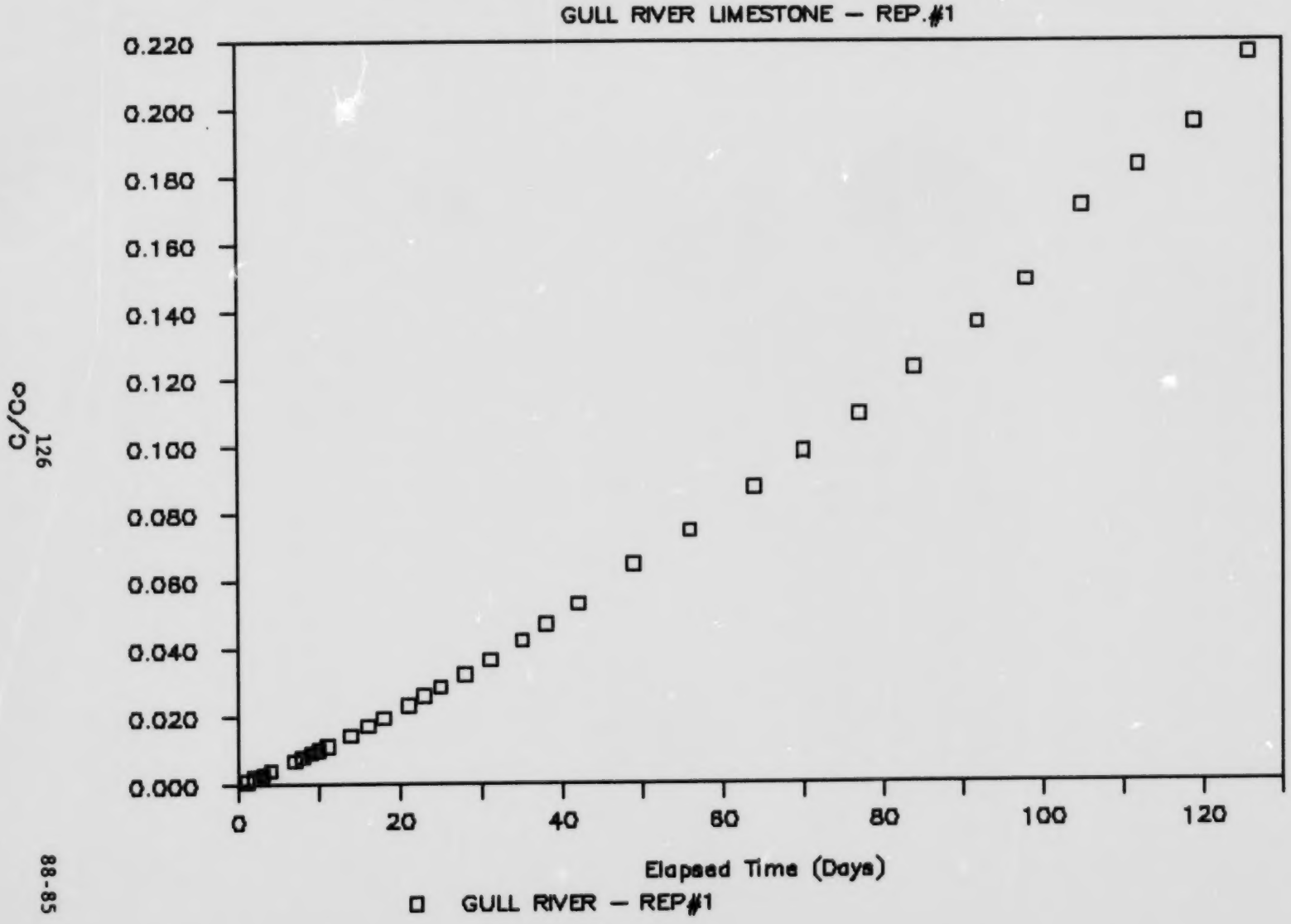
H-3 DIFFUSION
BULL RIVER LIMESTONE - REP# 1
CORE# 2(7)
CELL# 3
CORE THICKNESS = 0.332 (cm)
CORE DIAMETER = 4.507 (cm)
SURFACE AREA = 15.954 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.98	2.0170E-03
2.00	3.8721E-03
3.00	5.8161E-03
4.00	7.5881E-03
6.98	1.2911E-02
7.98	1.4867E-02
8.98	1.6602E-02
9.98	1.8163E-02
10.98	1.9499E-02
13.98	2.4293E-02
15.98	2.8473E-02
17.98	3.1453E-02
20.98	3.6322E-02
22.98	4.0195E-02
24.98	4.2769E-02
27.98	4.7233E-02
30.98	5.1738E-02
34.98	5.8177E-02
37.98	6.2823E-02
41.96	6.8746E-02
48.98	8.1210E-02
55.98	9.0322E-02
63.98	1.0214E-01
69.98	1.1065E-01
76.98	1.1854E-01
83.98	1.2805E-01
91.98	1.3631E-01
97.98	1.4289E-01
104.98	1.5656E-01
111.98	1.5996E-01
118.98	1.6281E-01
125.98	1.7100E-01

Regression Output:

Constant	9.26E-03
Std Err of Y Est	4.37E-03
R Squared	0.993005
No. of Observations	25
Degrees of Freedom	23
X Coefficient(s)	1.36E-03
Std Err of Coef.	2.39E-05

LAKEVIEW ROCK CORE DIFFUSION – H-3



H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
GULL RIVER LIMESTONE - REP.#2
CORE THICKNESS (L) = 0.334 (cm)
CORE DIAMETER = 4.505 (cm)
SURFACE AREA (A) = 15.940 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	1149.26	689748.0	0.98	1.6942E-03	8.0852E-04	2.0009E-08
98	35.36	2205.15	686307.5	2.00	3.2463E-03	1.5809E-03	1.7612E-08
96	33.41	3265.06	686542.5	3.00	4.7346E-03	2.3537E-03	1.7226E-08
94	40.75	4391.31	689029.0	4.00	6.2187E-03	3.1572E-03	1.7176E-08
92	37.18	7475.70	685534.5	6.98	1.0459E-02	5.4256E-03	1.6470E-08
90	38.08	8731.7	684326.5	7.98	1.1980E-02	6.3523E-03	1.7595E-08
88	34.08	10063.5	689011.0	8.98	1.3421E-02	7.2785E-03	1.6685E-08
86	33.31	11272.8	689498.0	9.98	1.4688E-02	8.1509E-03	1.4665E-08
84	35.29	12369.3	687136.0	10.98	1.5798E-02	8.9754E-03	1.2843E-08
82	39.67	15668.4	686039.0	13.98	1.9573E-02	1.1391E-02	1.4563E-08
80	35.71	19274.9	690026.5	15.98	2.3371E-02	1.3942E-02	2.1979E-08
78	34.05	21840.4	690586.0	17.98	2.5806E-02	1.5789E-02	1.4093E-08
76	35.96	25265.5	686979.5	20.98	2.9244E-02	1.8364E-02	1.3265E-08
74	36.32	28813.1	685207.0	22.98	3.2562E-02	2.1000E-02	1.9201E-08
72	38.48	31505.8	683346.5	24.98	3.4739E-02	2.3026E-02	1.2596E-08
70	35.20	35744.2	683052.5	27.98	3.8342E-02	2.6141E-02	1.3904E-08
68	37.83	40429.8	684414.0	30.98	4.2048E-02	2.9510E-02	1.4296E-08
66	34.07	46334.1	685591.5	34.98	4.6700E-02	3.3768E-02	1.3461E-08
64	39.89	50742.2	681597.5	37.98	4.9882E-02	3.7196E-02	1.2275E-08
62	34.08	57059.7	675326.5	41.96	5.4854E-02	4.2223E-02	1.4459E-08
60	37.03	70244.3	683819.0	48.98	6.4543E-02	5.1337E-02	1.5976E-08
58	39.91	81574.3	688801.0	55.98	7.1934E-02	5.9189E-02	1.2220E-08
56	36.07	93050.0	675500.0	63.98	8.0792E-02	6.8852E-02	1.2815E-08
54	37.87	103631.0	668856.5	69.98	8.7630E-02	7.7445E-02	1.3190E-08
52	36.94	114525.0	661485.0	76.98	9.4298E-02	8.6543E-02	1.1026E-08
50	38.57	127493.0	658202.0	83.98	1.0144E-01	9.6826E-02	1.1815E-08
48	35.82	143127.0	661705.5	91.98	1.0875E-01	1.0813E-01	1.0577E-08
46	37.42	155554.0	656324.0	97.98	1.1420E-01	1.1848E-01	1.0509E-08
44	38.24	177048.0	654422.5	104.98	1.2470E-01	1.3525E-01	1.7350E-08
42	35.35	190053.0	656488.5	111.98	1.2737E-01	1.4473E-01	4.4251E-09
40	37.62	203848.0	651657.5	118.98	1.3108E-01	1.5639E-01	6.1260E-09
38	38.68	220942.0	645650.5	125.98	1.3622E-01	1.7108E-01	8.5078E-09

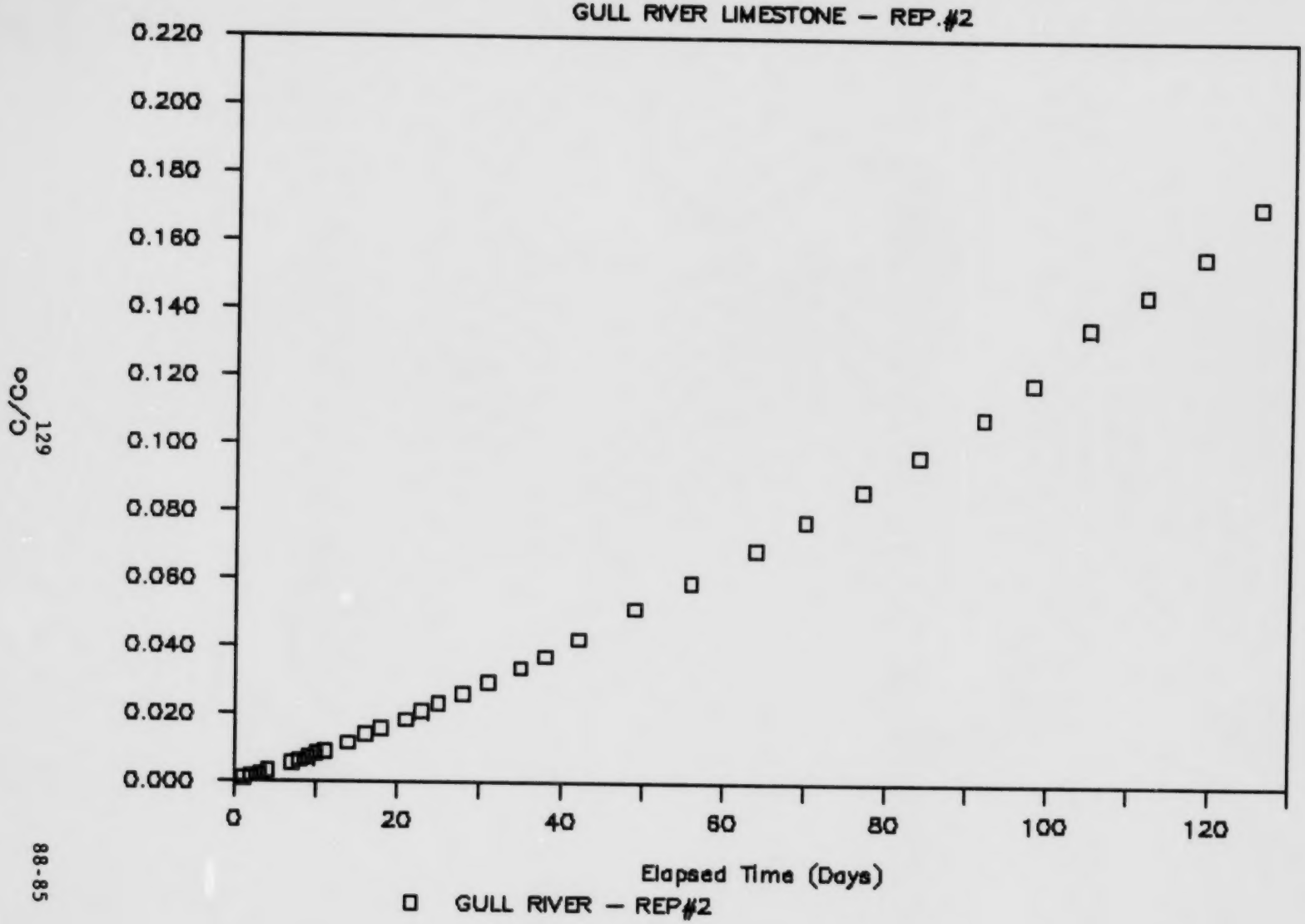
H-3 DIFFUSION
GULL RIVER LIMESTONE - REP# 2
CORE# 2(9)
CELL# 4
CORE THICKNESS = 0.334 (cm)
CORE DIAMETER = 4.505 (cm)
SURFACE AREA = 15.940 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.98	1.6942E-03
2.00	3.2463E-03
3.00	4.7346E-03
4.00	6.2187E-03
6.98	1.0459E-02
7.98	1.1980E-02
8.98	1.3421E-02
9.98	1.4688E-02
10.98	1.5798E-02
13.98	1.9573E-02
15.98	2.3371E-02
17.98	2.5806E-02
20.98	2.9244E-02
22.98	3.2562E-02
24.98	3.4739E-02
27.98	3.8342E-02
30.98	4.2048E-02
34.98	4.6700E-02
37.98	4.9882E-02
41.96	5.4854E-02
48.98	6.4543E-02
55.98	7.1934E-02
63.98	8.0792E-02
69.98	8.7630E-02
76.98	9.4298E-02
83.98	1.0144E-01
91.98	1.0875E-01
97.98	1.1420E-01
104.98	1.2470E-01
111.98	1.2737E-01
118.98	1.3108E-01
125.98	1.3622E-01

Regression Output:

Constant		7.76E-03
Std Err of Y Est		3.21E-03
R Squared		0.994007
No. of Observations		25
Degrees of Freedom		23
X Coefficient(s)	1.08E-03	
Std Err of Coef.	1.75E-05	

LAKEVIEW ROCK CORE DIFFUSION – H-3



H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
SHADOW LAKE SANDSTONE - REP.#1
CORE THICKNESS (L) = 0.428 (cm)
CORE DIAMETER = 4.505 (cm)
SURFACE AREA (A) = 15.940 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	8649.53	689748.0	0.98	1.6771E-02	6.2457E-03	1.9807E-07
98	35.36	20205.0	686307.5	2.00	3.8669E-02	1.4695E-02	2.4848E-07
96	33.41	31258.2	686542.5	3.00	5.8622E-02	2.2742E-02	2.3093E-07
94	40.75	42741.9	689029.0	4.00	7.8215E-02	3.0988E-02	2.2677E-07
92	37.18	76425.4	685534.5	6.98	1.3764E-01	5.5717E-02	2.3080E-07
90	38.08	88641.0	684326.5	7.98	1.5645E-01	6.4741E-02	2.1776E-07
88	34.08	100266.0	689011.0	8.98	1.7188E-01	7.2740E-02	1.7851E-07
86	33.31	113916.0	689498.0	9.98	1.9071E-01	8.2588E-02	2.1800E-07
84	35.29	125262.0	687136.0	10.98	2.0554E-01	9.1127E-02	1.7158E-07
82	39.67	160651.0	686039.0	13.98	2.5775E-01	1.1706E-01	2.0144E-07
80	35.71	183808.0	690026.5	15.98	2.8606E-01	1.3317E-01	1.6384E-07
78	34.05	209781.0	690586.0	17.98	3.1807E-01	1.5187E-01	1.8525E-07
76	35.96	245990.0	686979.5	20.98	3.6533E-01	1.7902E-01	1.8230E-07
74	36.32	271361.0	685207.0	22.98	3.9342E-01	1.9800E-01	1.6258E-07
72	38.48	295511.0	683346.5	24.98	4.1799E-01	2.1621E-01	1.4219E-07
70	35.20	324606.0	683052.5	27.98	4.4659E-01	2.3760E-01	1.1034E-07
68	37.83	368982.0	684414.0	30.98	4.9216E-01	2.6955E-01	1.7582E-07
66	34.07	416361.0	685591.5	34.98	5.3811E-01	3.0364E-01	1.3294E-07
64	39.89	452404.0	681597.5	37.98	5.7029E-01	3.3186E-01	1.2418E-07
62	34.08	495826.0	675326.5	41.96	6.1113E-01	3.6709E-01	1.1875E-07
60	37.03	586608.0	683819.0	48.98	6.9101E-01	4.2892E-01	1.3171E-07
58	39.91	661631.0	688801.0	55.98	7.4797E-01	4.8028E-01	9.4166E-08
56	36.07	722229.0	675500.0	63.98	8.0385E-01	5.3459E-01	8.0842E-08
54	37.87	772237.0	668856.5	69.98	8.3704E-01	5.7729E-01	6.4040E-08
52	36.94	803971.0	661485.0	76.98	8.4852E-01	6.0771E-01	1.8973E-08
50	38.57	879428.0	658202.0	83.98	8.9691E-01	6.6806E-01	8.0019E-08
48	35.82	936514.0	661705.5	91.98	9.1208E-01	7.0766E-01	2.1936E-08
46	37.42	973446.0	656324.0	97.98	9.1599E-01	7.4160E-01	7.5587E-09
44	38.24	1041883.0	654422.5	104.98	9.4049E-01	7.9605E-01	4.0509E-08
42	35.35	1070907.0	656488.5	111.98	9.1985E-01	8.1565E-01	-3.4137E-08
40	37.62	1103851.0	651657.5	118.98	9.0969E-01	8.4698E-01	-1.6792E-08
38	38.68	1127675.0	645650.5	125.98	8.9108E-01	8.7331E-01	-3.0782E-08

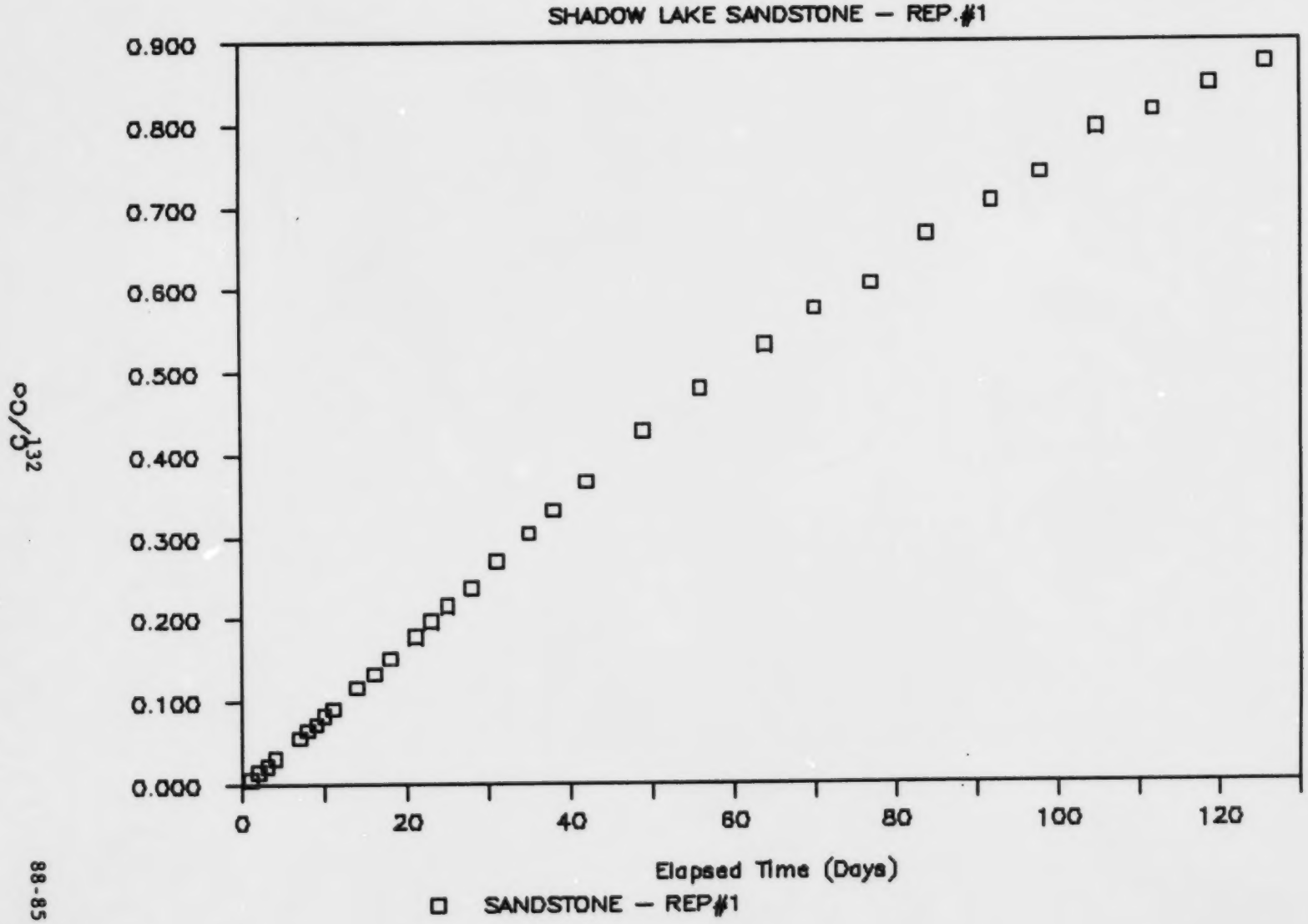
H-D DIFFUSION
SHADOW LAKE SANDSTONE - REP# 1
CORE# 4(12)
CELL# 7
CORE THICKNESS = 0.428 (cm)
CORE DIAMETER = 4.505 (cm)
SURFACE AREA = 15.940 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.98	1.6771E-02
2.00	3.8669E-02
3.00	5.8622E-02
4.00	7.8215E-02
6.98	1.3764E-01
7.98	1.5645E-01
8.98	1.7188E-01
9.98	1.9071E-01
10.98	2.0554E-01
13.98	2.5775E-01
15.98	2.8606E-01
17.98	3.1807E-01
20.98	3.6533E-01
22.98	3.9342E-01
24.98	4.1799E-01
27.98	4.4659E-01
30.98	4.9216E-01
34.98	5.3811E-01
37.98	5.7029E-01
41.96	6.1113E-01
48.98	6.9101E-01
55.98	7.4797E-01
63.98	8.0385E-01
69.98	8.3704E-01
76.98	8.4852E-01
83.98	8.9691E-01
91.98	9.1208E-01
97.98	9.1599E-01
104.98	9.4049E-01
111.98	9.1985E-01
118.98	9.0969E-01
125.98	8.9108E-01

Regression Output:

Constant	1.33E-01
Std Err of Y Est	2.74E-02
R Squared	0.982012
No. of Observations	16
Degrees of Freedom	14
X Coefficient(s)	1.08E-02
Std Err of Coef.	3.92E-04

LAKEVIEW ROCK CORE DIFFUSION – H-3



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88-85

H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
SHADOW LAKE SANDSTONE - REP.#2
CORE THICKNESS (L) = 0.428 (cm)
CORE DIAMETER = 4.502 (cm)
SURFACE AREA (A) = 15.918 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	8541.61	689748.0	0.98	1.6583E-02	6.1675E-03	1.9584E-07
98	35.36	20022.5	686307.5	2.00	3.8370E-02	1.4562E-02	2.4723E-07
96	33.41	30889.1	686542.5	3.00	5.8006E-02	2.2473E-02	2.2727E-07
94	40.75	42286.8	689029.0	4.00	7.7484E-02	3.0658E-02	2.2545E-07
92	37.18	75929.0	685534.5	6.98	1.3693E-01	5.5355E-02	2.3087E-07
90	38.08	87313.3	684326.5	7.98	1.5431E-01	6.3771E-02	2.0124E-07
88	34.08	99382.3	689011.0	8.98	1.7059E-01	7.2098E-02	1.8836E-07
86	33.31	111333.0	689498.0	9.98	1.8663E-01	8.0715E-02	1.8572E-07
84	35.29	123714.0	687136.0	10.98	2.0327E-01	9.0000E-02	1.9250E-07
82	39.67	158572.0	686039.0	13.98	2.5475E-01	1.1555E-01	1.9864E-07
80	35.71	182926.0	690026.5	15.98	2.8507E-01	1.3253E-01	1.7543E-07
78	34.05	207986.0	690586.0	17.98	3.1577E-01	1.5057E-01	1.7768E-07
76	35.96	244500.0	686979.5	20.98	3.6360E-01	1.7794E-01	1.8451E-07
74	36.32	269456.0	685207.0	22.98	3.9118E-01	1.9661E-01	1.5962E-07
72	38.48	294435.0	683346.5	24.98	4.1702E-01	2.1542E-01	1.4957E-07
70	35.20	329259.0	683052.5	27.98	4.5360E-01	2.4101E-01	1.4110E-07
68	37.83	367207.0	684414.0	30.98	4.9045E-01	2.6825E-01	1.4217E-07
66	34.07	414978.0	685591.5	34.98	5.3703E-01	3.0263E-01	1.3480E-07
64	39.89	444246.0	681597.5	37.98	5.6076E-01	3.2588E-01	9.1521E-08
62	34.08	488133.0	675326.5	41.96	6.0245E-01	3.6140E-01	1.2124E-07
60	37.03	582503.0	683819.0	48.98	6.8709E-01	4.2591E-01	1.3956E-07
58	39.91	652489.0	688801.0	55.98	7.3861E-01	4.7364E-01	8.5187E-08
56	36.07	720184.0	675500.0	63.98	8.0264E-01	5.3308E-01	9.2626E-08
54	37.87	756591.0	668856.5	69.98	8.2118E-01	5.6559E-01	3.5763E-08
52	36.94	816650.0	661485.0	76.98	8.6305E-01	6.1729E-01	6.9234E-08
50	38.57	870250.0	658202.0	83.98	8.8874E-01	6.6109E-01	4.2471E-08
48	35.82	924031.0	661705.5	91.98	9.0112E-01	6.9823E-01	1.7913E-08
46	37.42	958897.0	656324.0	97.98	9.0351E-01	7.3052E-01	4.6074E-09
44	38.24	1016295.0	654422.5	104.98	9.1862E-01	7.7650E-01	2.4987E-08
42	35.35	1054997.0	656488.5	111.98	9.0739E-01	8.0353E-01	-1.8565E-08
40	37.62	1089141.0	651657.5	118.98	8.9877E-01	8.3569E-01	-1.4260E-08
38	38.68	1119954.0	645650.5	125.98	8.8615E-01	8.6733E-01	-2.0853E-08

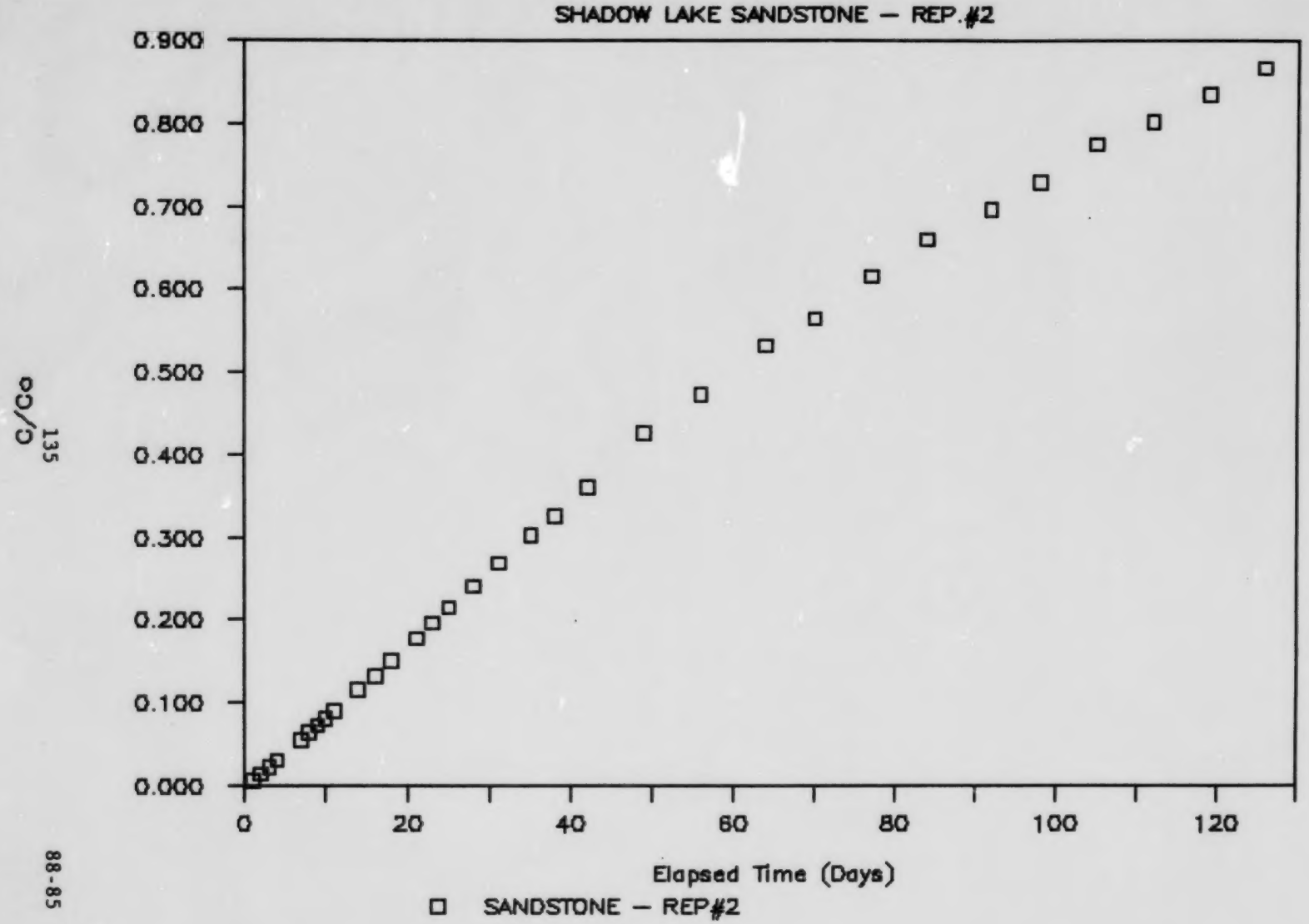
H-3 DIFFUSION
SHADOW LAKE SANDSTONE - REF# 2
CORE# A(14)
CELL# 5
CORE THICKNESS = 0.428 (cm)
CORE DIAMETER = 4.502 (cm)
SURFACE AREA = 15.918 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.98	1.6583E-02
2.00	3.8370E-02
3.00	5.8006E-02
4.00	7.7484E-02
6.98	1.3693E-01
7.98	1.5431E-01
8.98	1.7059E-01
9.98	1.8663E-01
10.98	2.0327E-01
13.98	2.5475E-01
15.98	2.8507E-01
17.98	3.1577E-01
20.99	3.6360E-01
22.98	3.9118E-01
24.98	4.1702E-01
27.98	4.5360E-01
30.98	4.9045E-01
34.98	5.3703E-01
37.95	5.6076E-01
41.96	6.0245E-01
48.98	6.8709E-01
55.98	7.3851E-01
63.98	8.0264E-01
69.98	8.2118E-01
76.99	8.6305E-01
83.98	8.8874E-01
91.98	9.0112E-01
97.98	9.0351E-01
104.98	9.1962E-01
111.98	9.0739E-01
118.98	9.6877E-01
125.98	8.8615E-01

Regression Output:

Constant		1.01E-01
Std Err of Y Est		3.40E-02
R Squared		0.977534
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	1.14E-02	
Std Err of Coef.	4.07E-04	

LAKEVIEW ROCK CORE DIFFUSION - H-3



CL-36 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
SHADOW LAKE SANDSTONE - REP.#3
CORE THICKNESS (L) = 0.418 (cm)
CORE DIAMETER = 4.509 (cm)
SURFACE AREA (A) = 15.968 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	55.40	401.10	127146.5	0.96	3.5602E-03	1.3600E-03	4.2923E-08
98	55.03	1985.67	125344.5	3.96	1.9765E-02	7.7047E-03	6.2520E-08
96	55.03	2453.27	125697.0	4.96	2.3984E-02	9.5439E-03	4.8827E-08
94	56.03	3561.67	125549.0	6.96	3.4369E-02	1.3967E-02	6.0099E-08
92	53.47	4144.30	125212.0	7.96	3.9358E-02	1.6343E-02	5.7740E-08
90	54.90	5882.50	126250.0	10.96	5.4398E-02	2.3090E-02	5.8025E-08
88	58.73	6539.23	127022.5	11.96	5.8790E-02	2.5521E-02	5.0835E-08
86	55.40	7167.43	127386.0	12.96	6.2872E-02	2.7927E-02	4.7236E-08
84	58.73	7841.20	126933.0	13.96	6.7440E-02	3.0670E-02	5.2877E-08
82	58.73	8492.77	125883.0	14.96	7.1942E-02	3.3515E-02	5.2101E-08
80	58.73	10524.7	125982.5	17.96	8.7028E-02	4.1557E-02	5.8202E-08
78	50.77	11916.8	126372.5	19.96	9.5900E-02	4.6967E-02	5.1343E-08
76	54.70	13315.6	126962.0	21.96	1.0394E-01	5.2246E-02	4.6547E-08
74	51.40	15402.4	126752.5	24.96	1.1735E-01	6.0580E-02	5.1725E-08
72	51.93	17342.2	127520.0	27.02	1.2783E-01	6.7822E-02	5.8874E-08
70	52.03	18856.1	128505.5	28.96	1.3412E-01	7.3194E-02	3.7545E-08
68	51.30	21340.9	128393.0	31.96	1.4764E-01	8.2941E-02	5.2153E-08
66	51.80	23789.1	128770.0	34.96	1.5931E-01	9.2206E-02	4.5006E-08
64	59.30	27991.9	128885.5	39.96	1.8163E-01	1.0841E-01	5.1672E-08
62	56.90	30424.9	129316.5	42.96	1.9065E-01	1.1747E-01	3.4814E-08
60	59.07	32807.4	130027.0	45.96	1.9788E-01	1.2599E-01	2.7883E-08
58	53.93	39241.4	131175.0	52.96	2.2688E-01	1.4943E-01	4.7953E-08
56	51.43	45163.8	132571.0	59.96	2.4952E-01	1.7021E-01	3.7426E-08
54	62.43	51071.3	132378.0	66.96	2.7247E-01	1.9275E-01	3.7958E-08
52	52.03	58022.3	131471.5	75.00	3.0022E-01	2.2055E-01	3.9948E-08
50	52.87	63279.9	131461.0	80.96	3.1488E-01	2.4058E-01	2.8464E-08
48	52.00	69171.7	131584.0	87.96	3.3015E-01	2.6275E-01	2.5242E-08
46	53.83	75791.2	132888.5	94.96	3.4328E-01	2.8508E-01	2.1720E-08

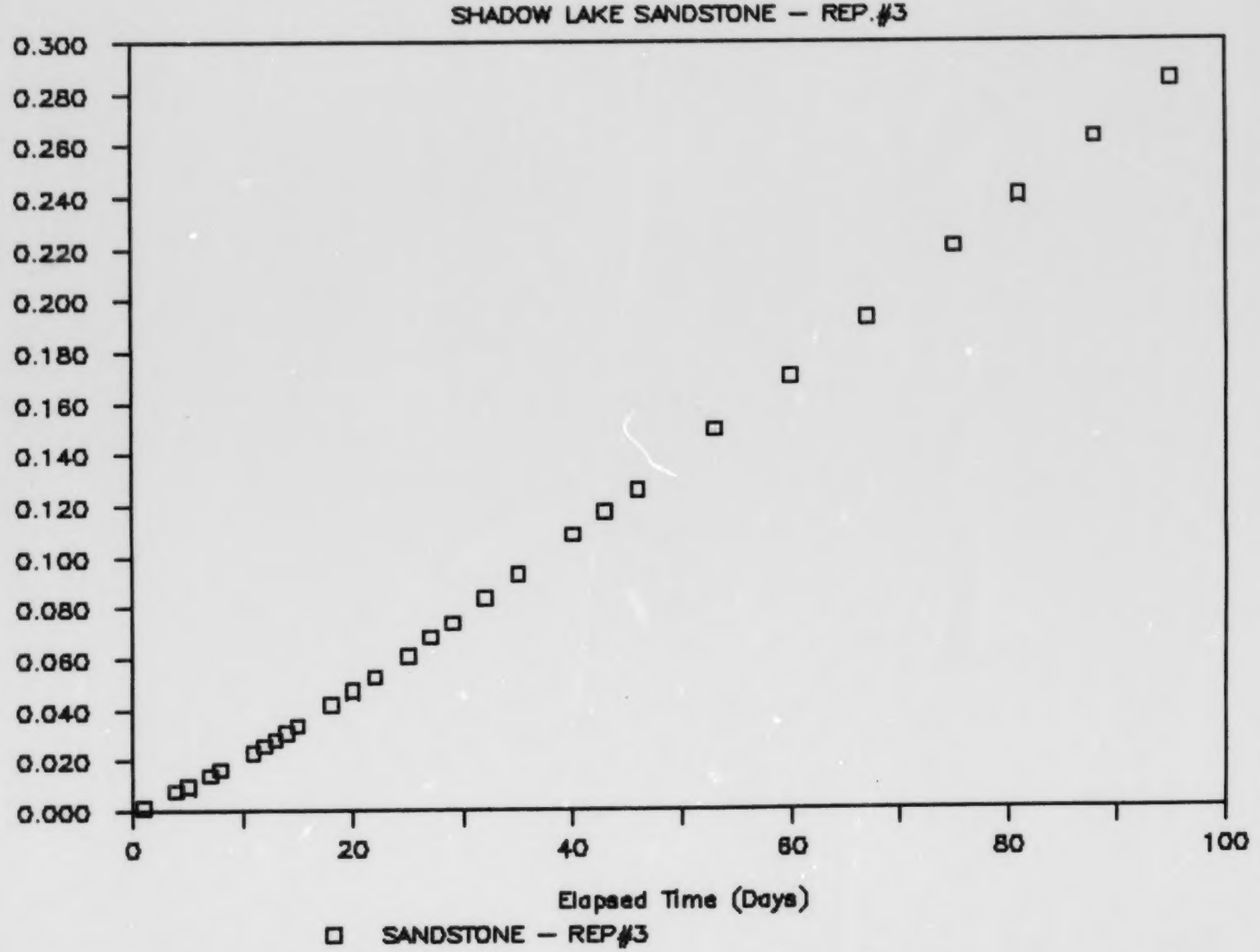
CL-36 DIFFUSION
SHADOW LAKE SANDSTONE - REP# 1 (NEW REP# 3)
CORE# 4(7)
CELL# 5
CORE THICKNESS = 0.419 (cm)
CORE DIAMETER = 4.509 (cm)
SURFACE AREA = 15.968 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.96	3.5602E-03
3.96	1.9765E-02
4.96	2.3984E-02
6.96	3.4369E-02
7.96	3.9358E-02
10.96	5.4398E-02
11.96	5.8790E-02
12.96	6.2872E-02
13.96	6.7440E-02
14.96	7.1942E-02
17.96	8.7028E-02
19.96	9.5900E-02
21.96	1.0394E-01
24.96	1.1735E-01
27.02	1.2783E-01
28.96	1.3412E-01
31.96	1.4764E-01
34.96	1.5931E-01
39.96	1.8163E-01
42.96	1.9065E-01
45.96	1.9788E-01
52.96	2.2688E-01
59.96	2.4952E-01
66.96	2.7247E-01
75.00	3.0022E-01
80.96	3.1488E-01
87.96	3.3015E-01
94.96	3.4328E-01

Regression Output:

Constant	1.77E-02
Std Err of Y Est	5.15E-03
R Squared	0.995537
No. of Observations	20
Degrees of Freedom	18
X Coefficient(s)	3.89E-03
Std Err of Coef.	6.14E-05

LAKEVIEW ROCK CORE DIFFUSION – CL-36



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CL-36 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
SHADOW LAKE SANDSTONE - REP.#4
CORE THICKNESS (L) - 0.418 (cm)
CORE DIAMETER - 4.509 (cm)
SURFACE AREA (A) - 15.968 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	55.40	463.70	127146.5	0.96	4.2049E-03	1.6063E-03	5.0696E-08
98	55.03	2203.57	125344.5	3.96	2.1996E-02	8.5743E-03	6.8640E-08
96	55.03	2715.57	125697.0	4.96	2.6607E-02	1.0588E-02	5.3368E-08
94	56.03	3885.77	125549.0	6.96	3.7547E-02	1.5259E-02	6.3307E-08
92	53.47	4401.00	125212.0	7.96	4.1828E-02	1.7368E-02	4.9549E-08
90	54.90	6362.90	126250.0	10.96	5.8883E-02	2.4993E-02	6.5798E-08
88	58.73	6944.33	127022.5	11.96	6.2465E-02	2.7116E-02	4.1468E-08
86	55.40	7688.73	127386.0	12.96	6.7480E-02	2.9974E-02	5.8038E-08
84	58.73	8303.43	126933.0	13.96	7.1446E-02	3.2492E-02	4.5899E-08
82	58.73	9048.10	125883.0	14.96	7.6678E-02	3.5722E-02	6.0566E-08
80	58.73	11222.5	125982.5	17.96	9.2830E-02	4.4327E-02	6.2313E-08
78	50.77	12438.3	126372.5	19.96	1.0011E-01	4.9032E-02	4.2155E-08
76	54.70	13924.8	126962.0	21.96	1.0872E-01	5.4647E-02	4.9790E-08
74	51.40	15940.2	126752.5	24.96	1.2146E-01	6.2702E-02	4.9163E-08
72	51.93	18055.4	127520.0	27.02	1.3310E-01	7.0620E-02	6.5400E-08
70	52.03	19559.0	128505.5	28.96	1.3914E-01	7.5930E-02	3.5998E-08
68	51.30	21881.4	128393.0	31.96	1.5139E-01	8.5047E-02	4.7272E-08
66	51.80	24215.0	128770.0	34.96	1.6216E-01	9.3861E-02	4.1572E-08
64	59.30	28148.8	128885.5	39.96	1.8265E-01	1.0902E-01	4.7417E-08
62	56.90	30850.2	129316.5	42.96	1.9332E-01	1.1911E-01	4.1179E-08
60	59.07	33181.3	130027.0	45.96	2.0014E-01	1.2742E-01	2.6298E-08
58	53.93	39306.8	131175.0	52.96	2.2726E-01	1.4968E-01	4.4844E-08
56	51.43	45198.3	132571.0	59.96	2.4971E-01	1.7034E-01	3.7116E-08
54	62.43	50956.8	132378.0	66.96	2.7186E-01	1.9232E-01	3.6631E-08
52	52.03	57230.0	131471.5	75.00	2.9612E-01	2.1754E-01	3.4921E-08
50	52.87	62486.6	131461.0	80.96	3.1093E-01	2.3756E-01	2.8760E-08
48	52.00	67944.4	131584.0	87.96	3.2428E-01	2.5808E-01	2.2081E-08
46	53.83	74145.7	132888.5	94.96	3.3582E-01	2.7889E-01	1.9080E-08

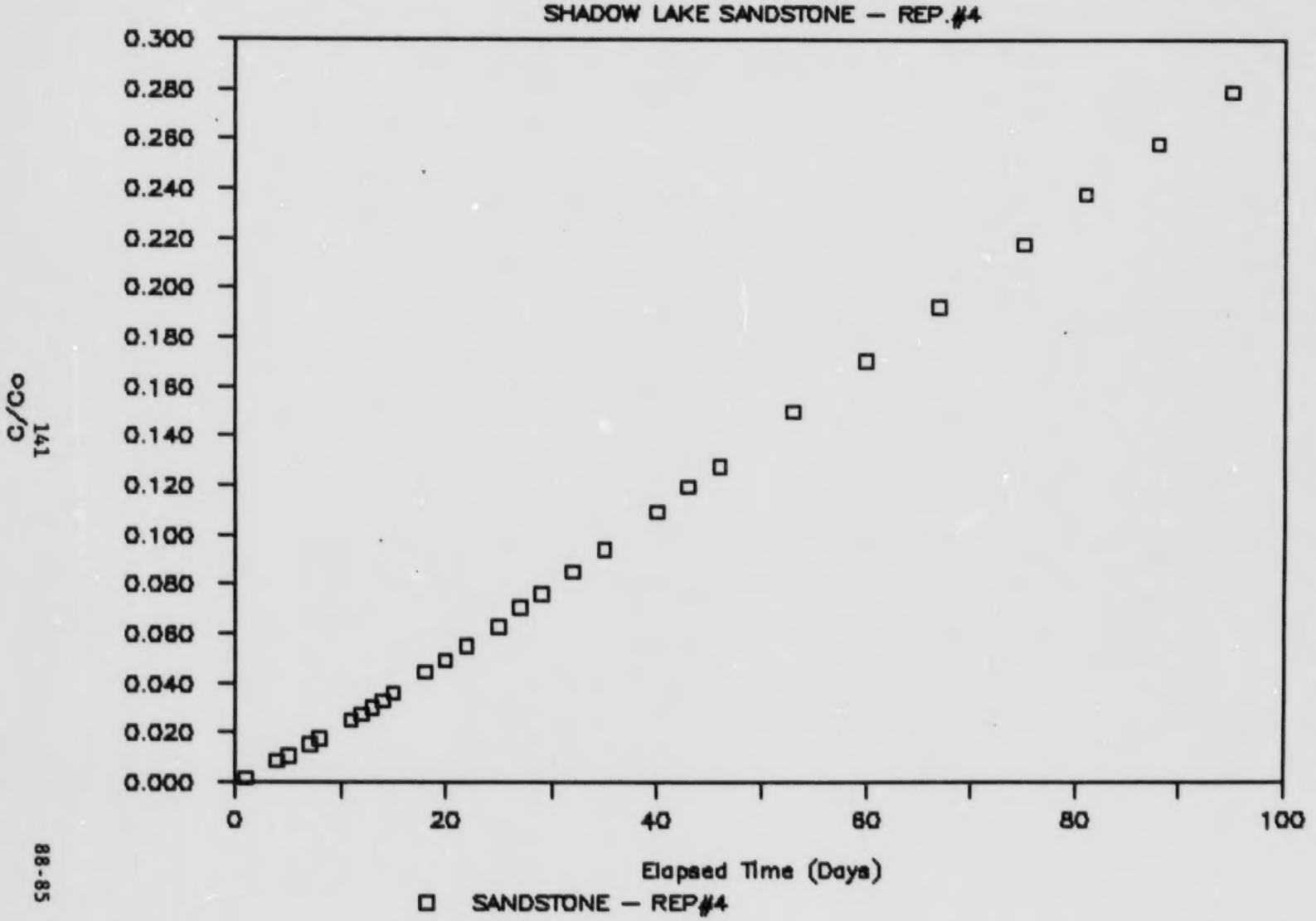
CL-36 DIFFUSION
SHADOW LAKE SANDSTONE - REP# 2 (NEW REP# 4)
CORE# 4(10)
CELL# 6
CORE THICKNESS = 0.418 (cm)
CORE DIAMETER = 4.509 (cm)
SURFACE AREA = 15.968 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.96	4.2049E-03
3.96	2.1996E-02
4.96	2.6607E-02
6.96	3.7547E-02
7.96	4.1828E-02
10.96	5.8883E-02
11.96	6.2465E-02
12.96	6.7480E-02
13.96	7.1446E-02
14.96	7.6678E-02
17.96	9.2830E-02
19.96	1.0011E-01
21.96	1.0872E-01
24.96	1.2146E-01
27.02	1.3310E-01
28.96	1.3914E-01
31.96	1.5139E-01
34.96	1.6216E-01
39.96	1.8265E-01
42.96	1.9332E-01
45.96	2.0014E-01
52.96	2.2726E-01
59.96	2.4971E-01
66.96	2.7186E-01
75.00	2.9612E-01
80.96	3.1093E-01
87.96	3.2428E-01
94.96	3.3582E-01

Regression Output:

Constant		2.44E-02
Std Err of Y Est		5.84E-03
R Squared		0.993909
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	3.78E-03	
Std Err of Coef.	6.97E-05	

LAKEVIEW ROCK CORE DIFFUSION – CL-36



H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
PRECAMBRIAN GRANITIC GNEISS- REP.#1
CORE THICKNESS (L) - 0.299 (cm)
CORE DIAMETER - 4.499 (cm)
SURFACE AREA (A) - 15.897 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	358.27	689748.0	0.98	4.4218E-04	2.3510E-04	5.2222E-09
98	35.36	625.26	686307.5	2.00	7.9218E-04	4.2979E-04	3.9716E-09
96	33.41	915.35	686542.5	3.00	1.1598E-03	6.4234E-04	4.2548E-09
94	40.75	1200.03	689029.0	4.00	1.4874E-03	8.4129E-04	3.7915E-09
92	37.18	1942.15	685534.5	6.98	2.4043E-03	1.3895E-03	3.5612E-09
90	38.08	2330.44	684326.5	7.98	2.8353E-03	1.6750E-03	4.9888E-09
88	34.08	2730.19	689011.0	8.98	3.2384E-03	1.9566E-03	4.6654E-09
86	33.31	3078.01	689498.0	9.98	3.5715E-03	2.2080E-03	3.8549E-09
84	35.29	3450.47	687136.0	10.98	3.9264E-03	2.4852E-03	4.1074E-09
82	39.67	4206.49	686039.0	13.98	4.6840E-03	3.0370E-03	2.9228E-09
80	35.71	5447.57	690026.5	15.98	5.9008E-03	3.9217E-03	7.0419E-09
78	34.05	6325.58	690586.0	17.98	6.6830E-03	4.5554E-03	4.5267E-09
76	35.96	7261.79	686979.5	20.98	7.5179E-03	5.2594E-03	3.2211E-09
74	36.32	8519.46	685207.0	22.98	8.6160E-03	6.1905E-03	6.3548E-09
72	38.48	9340.75	683346.5	24.98	9.2177E-03	6.8068E-03	3.4819E-09
70	35.20	10691.7	683052.5	27.98	1.0271E-02	7.8010E-03	4.0624E-09
68	37.83	12058.9	684414.0	30.98	1.1232E-02	8.7825E-03	3.7106E-09
66	34.07	13792.5	685591.5	34.98	1.2456E-02	1.0034E-02	3.5410E-09
64	39.89	15008.5	681597.5	37.98	1.3218E-02	1.0981E-02	2.9402E-09
62	34.08	17477.2	675326.5	41.96	1.5061E-02	1.2915E-02	5.3574E-09
60	37.03	21767.5	683819.0	48.98	1.7932E-02	1.5890E-02	4.7336E-09
58	39.91	24996.9	688801.0	55.98	1.9764E-02	1.8117E-02	3.0293E-09
56	36.07	28153.7	675500.0	63.98	2.1922E-02	2.0814E-02	3.1226E-09
54	37.87	31449.8	668856.5	69.98	2.3851E-02	2.3483E-02	3.7199E-09
52	36.94	34772.5	661485.0	76.98	2.5680E-02	2.6257E-02	3.0254E-09
50	38.57	37820.2	658202.0	83.98	2.6992E-02	2.8702E-02	2.1688E-09
48	35.82	42954.6	661705.5	91.98	2.9280E-02	3.2432E-02	3.3096E-09
46	37.42	47589.0	656324.0	97.98	3.1344E-02	3.6228E-02	3.9812E-09
44	38.24	52946.7	654422.5	104.98	3.3455E-02	4.0426E-02	3.4915E-09
42	35.35	56888.1	656488.5	111.98	3.4207E-02	4.3303E-02	1.2431E-09
40	37.62	62255.1	651657.5	118.98	3.5917E-02	4.7741E-02	2.8268E-09
38	38.68	67593.5	645650.5	125.98	3.7393E-02	5.2318E-02	2.4405E-09

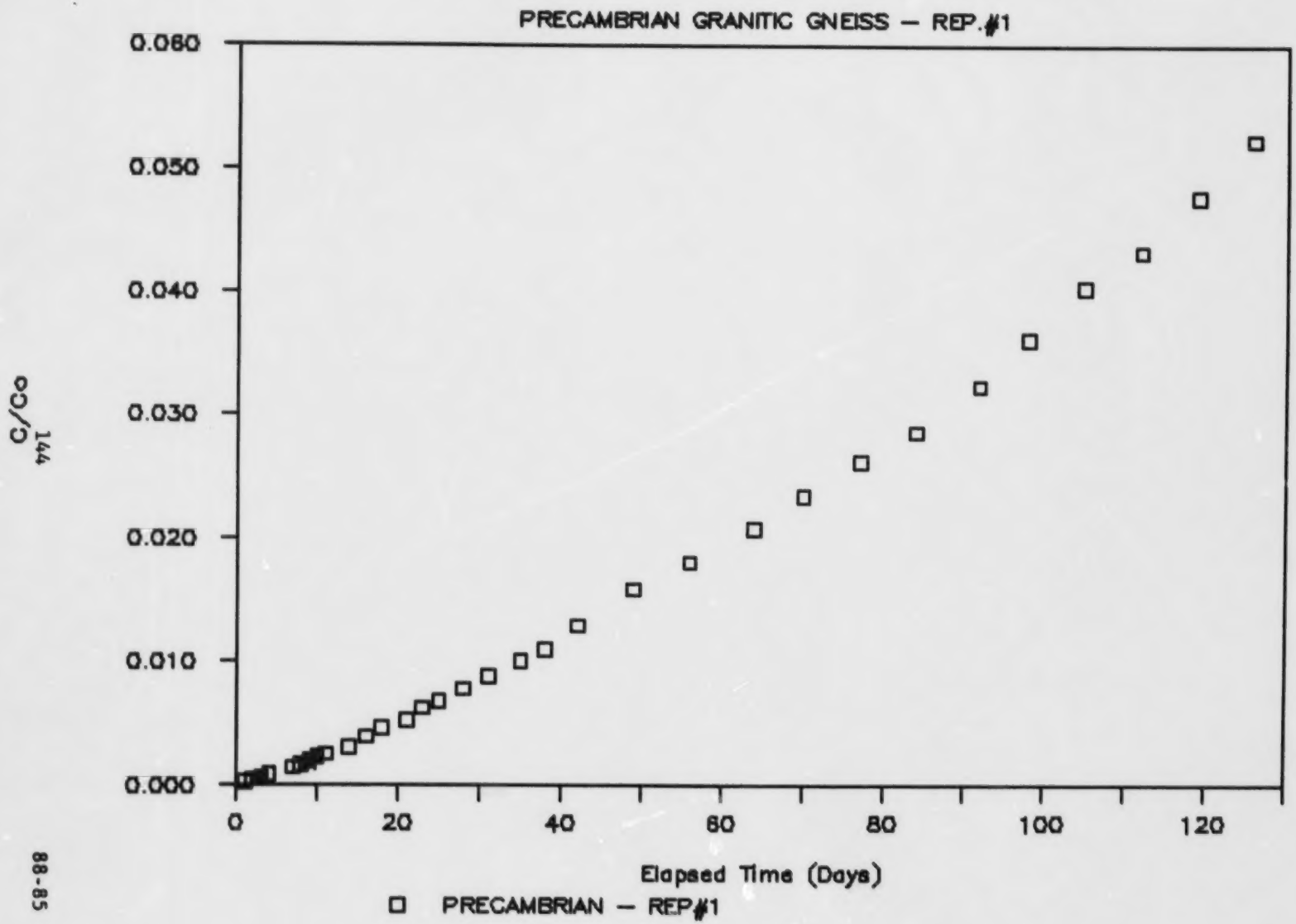
H-3 DIFFUSION
PRECAMBRIAN - REP# 1
CORE# 7(9)
CELL# 5
CORE THICKNESS = 0.299 (cm)
CORE DIAMETER = 4.499 (cm)
SURFACE AREA = 15.897 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.98	4.4218E-04
2.00	7.9218E-04
3.00	1.1598E-03
4.00	1.4874E-03
6.98	2.4043E-03
7.98	2.8353E-03
8.98	3.2384E-03
9.98	3.5715E-03
10.98	3.9264E-03
13.98	4.6840E-03
15.98	5.9008E-03
17.98	6.6830E-03
20.98	7.5179E-03
22.98	8.6160E-03
24.98	9.2177E-03
27.98	1.0271E-02
30.98	1.1232E-02
34.98	1.2456E-02
37.98	1.3218E-02
41.96	1.5061E-02
48.98	1.7932E-02
55.98	1.9764E-02
63.98	2.1922E-02
69.98	2.3851E-02
76.98	2.5680E-02
83.98	2.6992E-02
91.98	2.9280E-02
97.98	3.1344E-02
104.98	3.3455E-02
111.98	3.4207E-02
118.98	3.5917E-02
125.98	3.7393E-02

Regression Output:

Constant		1.76E-03
Std Err of Y Est		9.38E-04
R Squared		0.993251
No. of Observations		25
Degrees of Freedom		23
X Coefficient(s)	2.98E-04	
Std Err of Coef.	5.12E-06	

LAKEVIEW ROCK CORE DIFFUSION – H-3



H-3 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
PRECAMBRIAN GRANITIC GNEISS - REP.#2
CORE THICKNESS (L) - 0.298 (cm)
CORE DIAMETER - 4.498 (cm)
SURFACE AREA (A) - 15.890 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	33.97	610.34	689748.0	0.98	7.8359E-04	4.1783E-04	9.2544E-09
98	35.36	863.37	686307.5	2.00	1.1087E-03	6.0327E-04	3.6893E-09
96	33.41	1203.21	686542.5	3.00	1.5339E-03	8.5199E-04	4.9209E-09
94	40.75	1533.18	689029.0	4.00	1.9093E-03	1.0831E-03	4.3447E-09
92	37.18	2288.57	685534.5	6.98	2.8333E-03	1.6422E-03	3.5888E-09
90	38.08	2699.21	684326.5	7.98	3.2819E-03	1.9445E-03	5.1924E-09
88	34.08	3139.51	689011.0	8.98	3.7193E-03	2.2537E-03	5.0620E-09
86	33.31	3544.18	689498.0	9.98	4.1064E-03	2.5461E-03	4.4804E-09
84	35.29	3884.51	687136.0	10.98	4.4125E-03	2.8011E-03	3.5436E-09
82	39.67	4660.09	686039.0	13.98	5.1788E-03	3.3677E-03	2.9562E-09
80	35.71	6197.24	690026.5	15.98	6.6987E-03	4.4649E-03	8.7959E-09
78	34.05	7117.53	690586.0	17.98	7.5024E-03	5.1289E-03	4.6511E-09
76	35.96	8051.12	686979.5	20.98	8.3150E-03	5.8339E-03	3.1349E-09
74	36.32	9572.13	685207.0	22.98	9.6571E-03	6.9587E-03	7.7669E-09
72	38.48	10458.2	683346.5	24.98	1.0295E-02	7.6245E-03	3.6918E-09
70	35.20	11757.8	683052.5	27.98	1.1265E-02	8.5815E-03	3.7436E-09
68	37.83	13058.1	684414.0	30.98	1.2131E-02	9.5125E-03	3.3388E-09
66	34.07	14939.4	685591.5	34.98	1.3455E-02	1.0871E-02	3.8328E-09
64	39.89	16144.5	681597.5	37.98	1.4180E-02	1.1815E-02	2.7963E-09
62	34.08	18678.9	675326.5	41.96	1.6051E-02	1.3805E-02	5.4416E-09
60	37.03	23742.5	683819.0	48.98	1.9505E-02	1.7334E-02	5.6934E-09
58	39.91	26829.3	688801.0	55.98	2.1153E-02	1.9448E-02	2.7260E-09
56	36.07	30200.9	675500.0	63.98	2.3450E-02	2.2329E-02	3.3228E-09
54	37.87	33448.5	668856.5	69.98	2.5295E-02	2.4977E-02	3.5581E-09
52	36.94	36886.0	661485.0	76.98	2.7164E-02	2.7855E-02	3.0907E-09
50	38.57	40526.0	658202.0	83.98	2.8841E-02	3.0758E-02	2.7734E-09
48	35.82	45169.7	661705.5	91.98	3.0701E-02	3.4106E-02	2.6914E-09
46	37.42	49351.1	656324.0	97.98	3.2411E-02	3.7570E-02	3.2971E-09
44	38.24	55262.4	654422.5	104.98	3.4818E-02	4.2196E-02	3.9806E-09
42	35.35	59208.2	656488.5	111.98	3.5500E-02	4.5070E-02	1.1269E-09
40	37.62	64226.6	651657.5	118.98	3.6947E-02	4.9253E-02	2.3935E-09
38	38.68	69023.4	645650.5	125.98	3.8073E-02	5.3426E-02	1.8619E-09

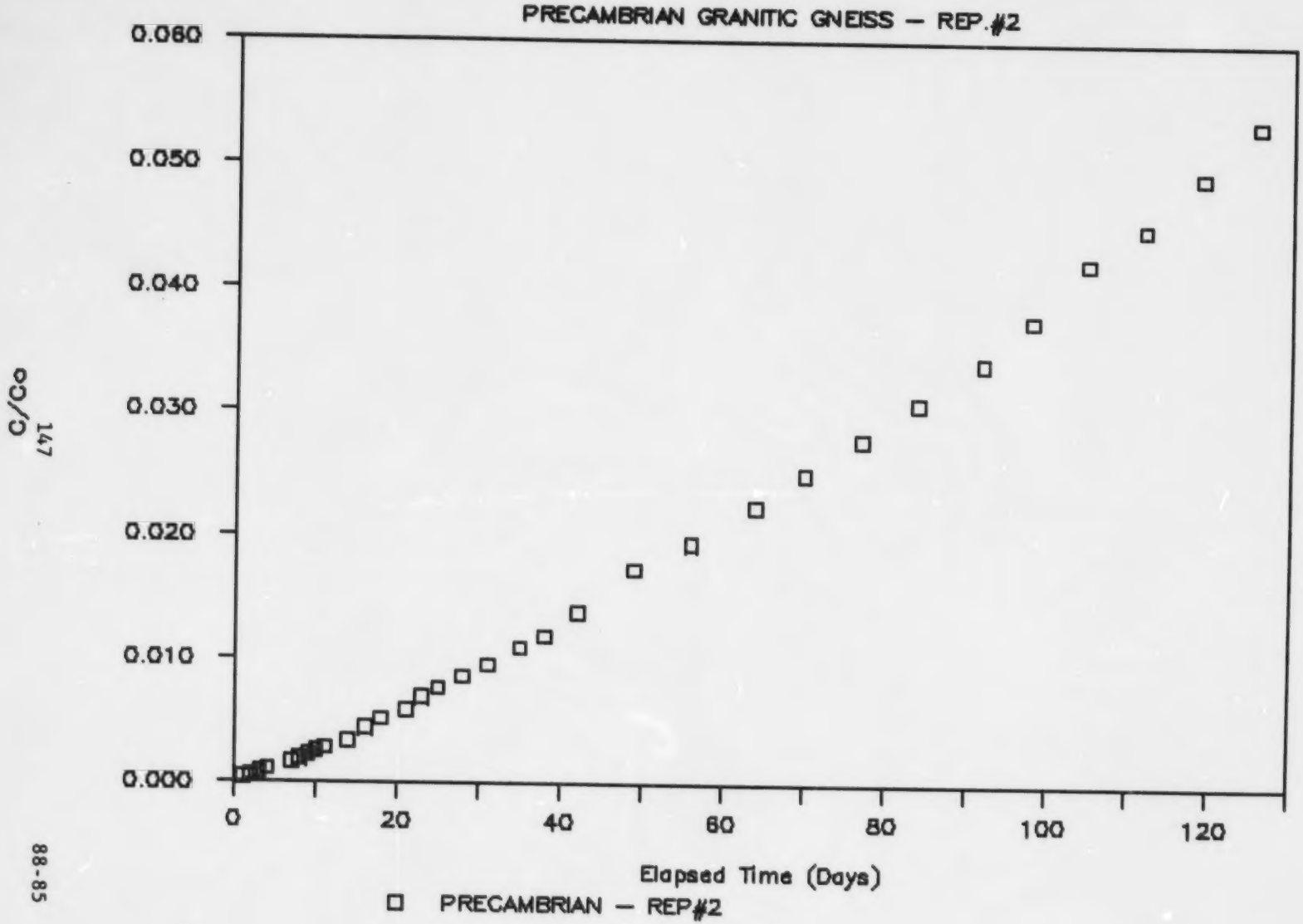
H-3 DIFFUSION
PRECAMBRIAN - REP# 2
CORE# 3(10)
CELL# 6
CORE THICKNESS = 0.298 (cm)
CORE DIAMETER = 4.498 (cm)
SURFACE AREA = 15.890 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.98	7.8259E-04
2.00	1.1087E-03
3.00	1.5339E-03
4.00	1.9093E-03
6.98	2.8333E-03
7.98	3.2819E-03
8.98	3.7193E-03
9.96	4.1064E-03
10.95	4.4125E-03
13.98	5.1788E-03
15.98	6.6987E-03
17.96	7.5024E-03
20.98	8.3150E-03
22.98	9.6571E-03
24.98	1.0295E-02
27.98	1.1265E-02
30.98	1.2131E-02
34.98	1.3455E-02
37.98	1.4180E-02
41.96	1.6051E-02
48.98	1.9505E-02
55.98	2.1153E-02
63.98	2.3450E-02
69.98	2.5295E-02
76.98	2.7164E-02
83.98	2.8841E-02
91.98	3.0701E-02
97.98	3.2411E-02
104.98	3.4818E-02
111.98	3.5500E-02
118.98	3.6947E-02
125.98	3.8073E-02

Regression Output:

Constant	2.57E-03
Std Err of Y Est	1.22E-03
R Squared	0.989043
No. of Observations	25
Degrees of Freedom	23
X Coefficient(s)	3.03E-04
Std Err of Coef.	6.64E-06

LAKEVIEW ROCK CORE DIFFUSION – H-3



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CL-36 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
PRECAMBRIAN GRANITIC GNEISS - REP.#3
CORE THICKNESS (L) - 0.301 (cm)
CORE DIAMETER - 4.498 (cm)
SURFACE AREA (A) - 15.890 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	55.40	341.77	127146.5	0.96	2.1341E-03	1.1266E-03	2.5730E-08
98	55.03	820.40	125344.5	3.96	5.6701E-03	3.0544E-03	1.3642E-08
96	55.03	949.43	125697.0	4.96	6.4725E-03	3.5593E-03	9.2877E-09
94	56.03	1190.43	125549.0	6.96	8.0479E-03	4.5198E-03	9.1165E-09
92	53.47	1280.57	125212.0	7.96	8.5431E-03	4.9022E-03	5.7314E-09
90	54.90	1676.73	126250.0	10.96	1.0955E-02	6.4259E-03	9.3052E-09
88	58.73	1876.30	127022.5	11.96	1.1932E-02	7.1578E-03	1.1304E-08
86	55.40	2008.93	127386.0	12.96	1.2497E-02	7.6711E-03	6.5389E-09
84	58.73	2132.93	126933.0	13.96	1.3007E-02	8.1742E-03	5.9023E-09
82	58.73	2238.23	125883.0	14.96	1.3453E-02	8.6609E-03	5.1647E-09
80	58.73	2738.63	125982.5	17.96	1.6125E-02	1.0641E-02	1.0310E-08
78	50.77	2882.93	126372.5	19.96	1.6563E-02	1.1210E-02	2.5335E-09
76	54.70	3150.10	126962.0	21.96	1.7557E-02	1.2196E-02	5.7519E-09
74	51.40	3367.23	126752.5	24.96	1.8342E-02	1.3085E-02	3.0291E-09
72	51.93	3735.30	127520.0	27.02	1.9705E-02	1.4448E-02	7.6588E-09
70	52.03	3928.73	128505.5	28.96	2.0009E-02	1.5090E-02	1.8107E-09
68	51.30	4202.33	128393.0	31.96	2.0831E-02	1.6172E-02	3.1709E-09
66	51.80	4515.87	128770.0	34.96	2.1679E-02	1.7340E-02	3.2733E-09
64	59.30	5041.80	128885.5	39.96	2.3444E-02	1.9338E-02	4.0851E-09
62	56.90	5542.87	129316.5	42.96	2.4922E-02	2.1221E-02	5.7039E-09
60	59.07	5888.30	130027.0	45.96	2.5488E-02	2.2426E-02	2.1816E-09
58	53.93	6660.47	131175.0	52.96	2.7678E-02	2.5193E-02	3.6215E-09
56	51.43	7501.87	132571.0	59.96	2.9819E-02	2.8111E-02	3.5403E-09
54	62.43	8235.60	132378.0	66.96	3.1592E-02	3.0885E-02	2.9315E-09
52	52.03	9207.60	131471.5	75.00	3.4311E-02	3.4833E-02	3.9141E-09
50	52.87	9962.63	131461.0	80.96	3.5712E-02	3.7706E-02	2.7209E-09
48	52.00	10783.80	131584.0	87.96	3.7093E-02	4.0795E-02	2.2825E-09
46	53.87	11785.60	132888.5	94.96	3.8478E-02	4.4159E-02	2.2908E-09

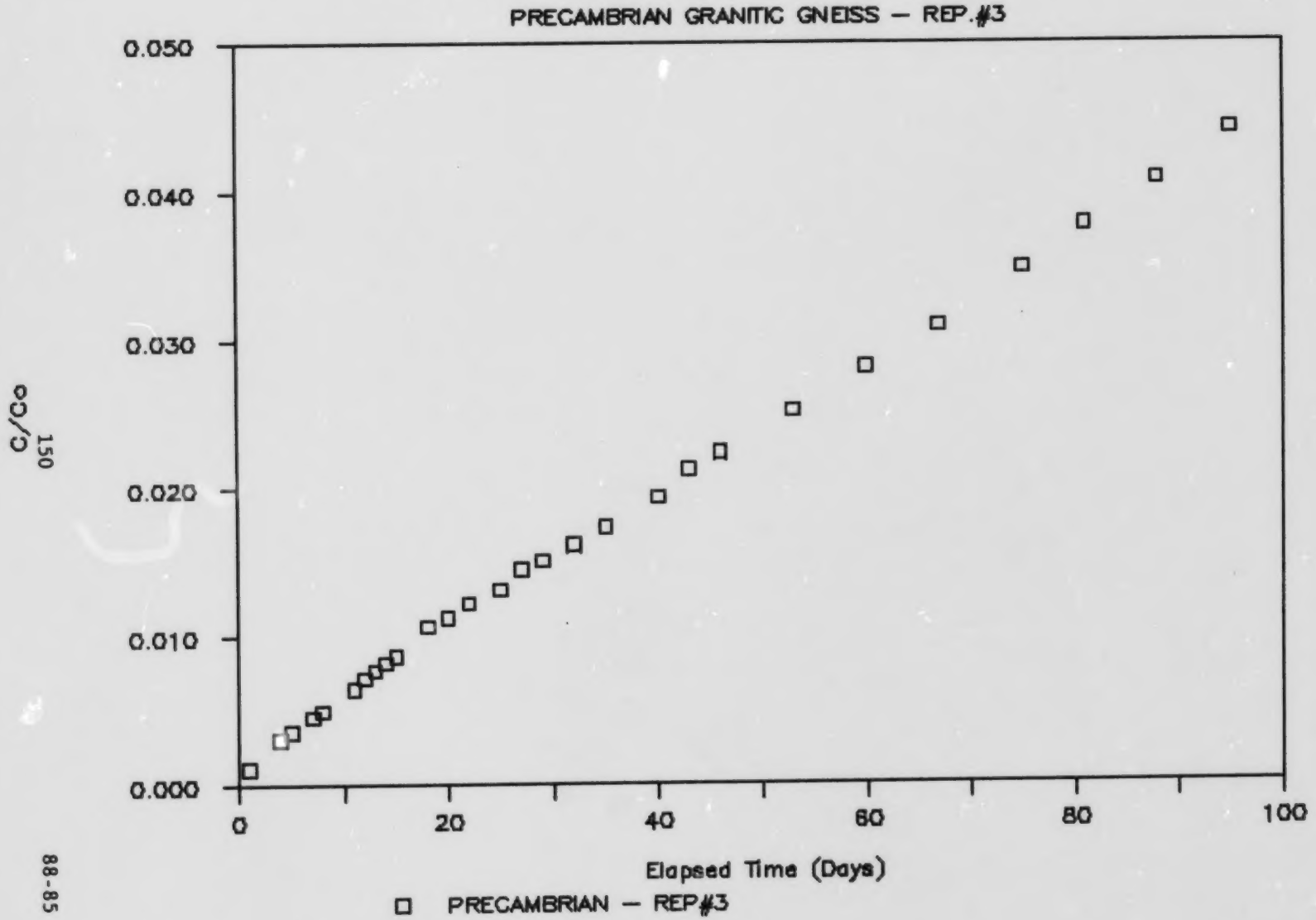
CL-36 DIFFUSION
PRECAMBRIAN - REP# 1 (NEW REP# 3)
CORE# 3(7)
CELL# 3
CORE THICKNESS = 0.301 (cm)
CORE DIAMETER = 4.498 (cm)
SURFACE AREA = 15.890 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.96	2.1341E-03
3.96	5.6701E-03
4.96	6.4725E-03
6.96	8.0479E-03
7.96	8.5431E-03
10.96	1.0955E-02
11.96	1.1932E-02
12.96	1.2497E-02
13.96	1.3007E-02
14.96	1.3453E-02
17.96	1.6125E-02
19.96	1.6563E-02
21.96	1.7557E-02
24.96	1.8342E-02
27.02	1.9705E-02
28.96	2.0009E-02
31.96	2.0831E-02
34.96	2.1679E-02
39.96	2.3444E-02
42.96	2.4922E-02
45.96	2.5488E-02
52.96	2.7678E-02
59.96	2.9819E-02
66.96	3.1592E-02
75.00	3.4311E-02
80.96	3.5712E-02
87.96	3.7093E-02
94.96	3.8478E-02

Regression Outputs:

Constant		9.67E-03
Std Err of Y Est		1.14E-03
R Squared		0.983199
No. of Observations		23
Degrees of Freedom		21
X Coefficient(s)	3.25E-04	
Std Err of Coef.	9.26E-06	

LAKEVIEW ROCK CORE DIFFUSION – CL-36



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CL-36 DIFFUSION RESULTS
LAKEVIEW ROCK CORE
PRECAMBRIAN GRANITIC GNEISS - REP.#4
CORE THICKNESS (L) = 0.305 (cm)
CORE DIAMETER = 4.499 (cm)
SURFACE AREA (A) = 15.897 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	55.40	90.67	127146.5	0.96	2.6622E-04	1.3876E-04	3.2096E-09
98	55.03	221.67	125344.5	3.96	1.2504E-03	6.6502E-04	3.7969E-09
96	55.03	249.17	125697.0	4.96	1.4230E-03	7.7259E-04	1.9978E-09
94	56.03	316.90	125549.0	6.96	1.8745E-03	1.0394E-03	2.6128E-09
92	53.47	355.93	125212.0	7.96	2.1328E-03	1.2083E-03	2.9894E-09
90	54.90	496.77	126250.0	10.96	3.0230E-03	1.7507E-03	3.4347E-09
88	58.73	534.30	127022.5	11.96	3.1620E-03	1.8729E-03	1.6087E-09
86	55.40	561.27	127386.0	12.96	3.2776E-03	1.9864E-03	1.3374E-09
84	58.73	615.60	126933.0	13.96	3.5368E-03	2.1946E-03	3.0000E-09
82	58.73	643.47	125883.0	14.96	3.6556E-03	2.3236E-03	1.3754E-09
80	58.73	797.90	125982.5	17.96	4.5048E-03	2.9350E-03	3.2761E-09
78	50.77	841.93	126372.5	19.96	4.6863E-03	3.1315E-03	1.0503E-09
76	54.70	905.73	126962.0	21.96	4.8890E-03	3.3530E-03	1.1731E-09
74	51.40	997.77	126752.5	24.96	5.3022E-03	3.7347E-03	1.5943E-09
72	51.93	1126.37	127520.0	27.02	5.8218E-03	4.2145E-03	2.9194E-09
70	52.03	1215.17	128505.5	28.96	6.0804E-03	4.5275E-03	1.5425E-09
68	51.30	1332.20	128393.0	31.96	6.5103E-03	4.9902E-03	1.6588E-09
66	51.80	1447.10	128770.0	34.96	6.8631E-03	5.4200E-03	1.3609E-09
64	59.30	1707.43	128885.5	39.96	7.8544E-03	6.3967E-03	2.2948E-09
62	56.90	1853.23	129316.5	42.96	8.2654E-03	6.9485E-03	1.5854E-09
60	59.07	1985.60	130027.0	45.96	8.5317E-03	7.4116E-03	1.0277E-09
58	53.93	2327.43	131175.0	52.96	9.6471E-03	8.6695E-03	1.8442E-09
56	51.43	2684.03	132571.0	59.96	1.0672E-02	9.9329E-03	1.6943E-09
54	62.43	3035.20	132378.0	66.96	1.1638E-02	1.1234E-02	1.5980E-09
52	52.03	3456.03	131471.5	75.00	1.2921E-02	1.2951E-02	1.8458E-09
50	52.87	3802.50	131461.0	80.96	1.3686E-02	1.4267E-02	1.4869E-09
48	52.00	4273.80	131584.0	87.96	1.4779E-02	1.6049E-02	1.8074E-09
46	53.83	4688.07	132888.5	94.96	1.5395E-02	1.7444E-02	1.0175E-09

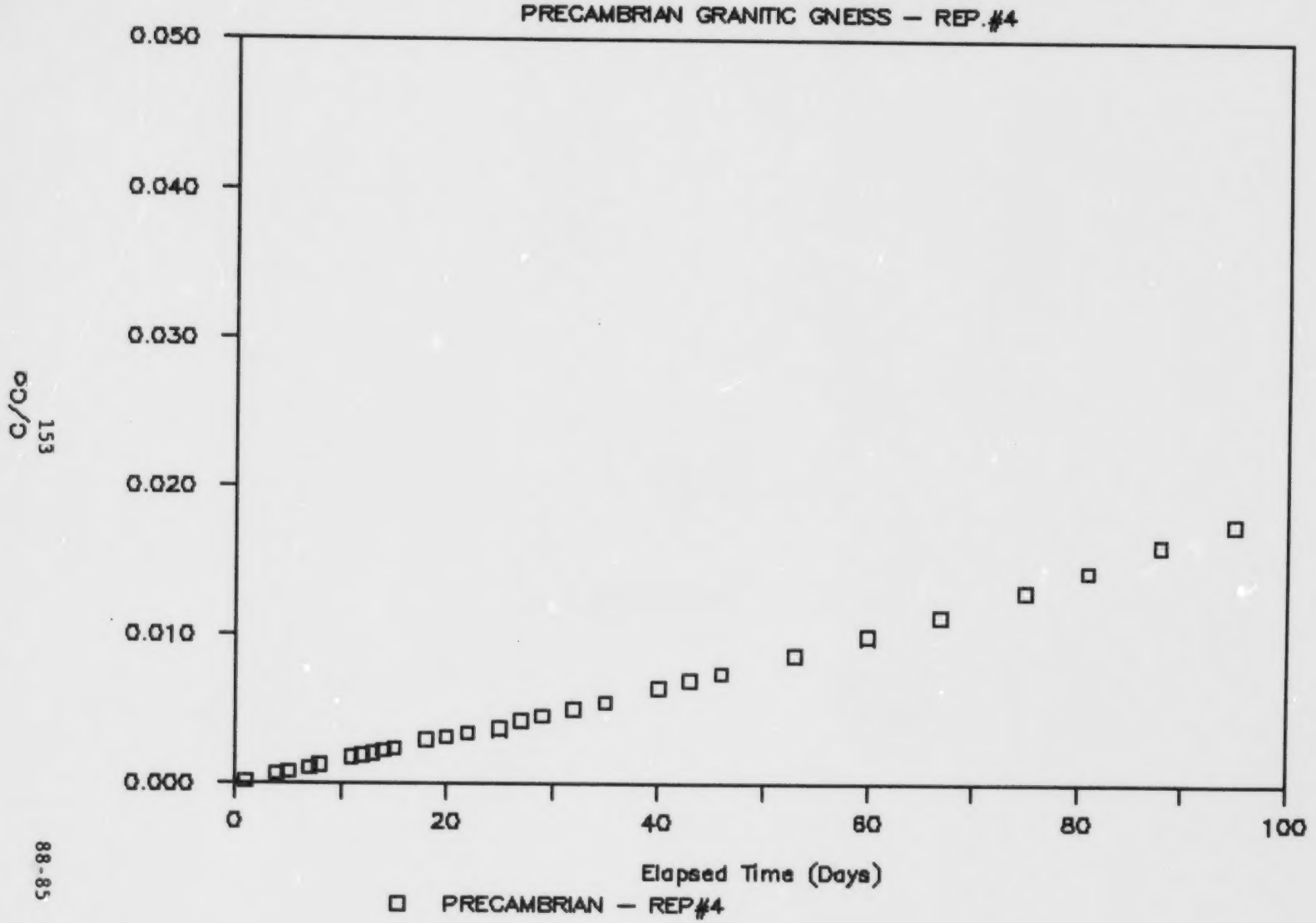
CL-36 DIFFUSION
PRECAMBRIAN - REP# 2 (NEW REP# 4)
CORE# 3(8)
CELL# 4
CORE THICKNESS = 6.305 (cm)
CORE DIAMETER = 4.499 (cm)
SURFACE AREA = 15.897 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.96	2.6622E-04
3.96	1.2504E-03
4.96	1.4230E-03
6.96	1.8745E-03
7.96	2.1328E-03
10.96	3.0230E-03
11.96	3.1620E-03
12.96	3.2776E-03
13.96	3.5368E-03
14.96	3.6556E-03
17.96	4.5048E-03
19.96	4.6863E-03
21.96	4.9890E-03
24.96	5.3022E-03
27.02	5.8218E-03
28.96	6.0804E-03
31.96	6.5103E-03
34.96	6.8631E-03
39.96	7.8544E-03
42.96	8.2654E-03
45.96	8.5317E-03
52.96	9.6471E-03
59.96	1.0672E-02
66.96	1.1638E-02
75.00	1.2921E-02
80.96	1.3686E-02
87.96	1.4779E-02
94.96	1.5395E-02

Regression Output:

Constant		1.60E-03
Std Err of Y Est		1.82E-04
R Squared		0.997949
No. of Observations		23
Degrees of Freedom		21
X Coefficient(s)	1.50E-04	
Std Err of Coef.	1.48E-06	

LAKEVIEW ROCK CORE DIFFUSION – CL-36



H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#1
CORE THICKNESS (L) = 0.210 (cm)
CORE DIAMETER = 4.502 (cm)
SURFACE AREA (A) = 15.918 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	56.88	97.94	1161760.0	0.06	2.3314E-05	1.7672E-05	4.4972E-09
98	56.88	507.20	1157651.5	0.19	2.5147E-04	1.9451E-04	2.0313E-08
96	56.88	3414.88	1156264.0	0.96	1.8391E-03	1.4522E-03	2.3864E-08
94	60.47	4606.32	1159179.5	1.21	2.4317E-03	1.9609E-03	2.7434E-08
92	58.55	7721.98	1163404.0	1.98	3.9975E-03	3.2937E-03	2.3537E-08
90	58.55	8493.45	1157515.0	2.19	4.3262E-03	3.6437E-03	1.8115E-08
88	63.59	11837.6	1152504.0	2.96	5.9303E-03	5.1083E-03	2.4112E-08
86	60.00	12819.2	1157556.5	3.21	6.2530E-03	5.5116E-03	1.4941E-08
84	54.95	16188.8	1158972.5	3.94	7.7135E-03	6.9607E-03	2.3156E-08
82	62.37	17034.3	1153475.0	4.17	7.9588E-03	7.3573E-03	1.2344E-08
80	62.37	30493.9	1149666.0	6.96	1.3969E-02	1.3236E-02	2.4931E-08
78	61.88	35480.1	1153877.5	7.96	1.5793E-02	1.5348E-02	2.1119E-08
76	67.95	40319.9	1145340.5	8.94	1.7619E-02	1.7573E-02	2.1561E-08
74	65.44	45680.7	1137505.5	9.96	1.9575E-02	2.0052E-02	2.2195E-08
72	66.97	51149.2	1144107.5	10.94	2.1205E-02	2.2325E-02	1.9257E-08
70	60.90	67720.9	1143426.0	13.96	2.7323E-02	2.9588E-02	2.3446E-08
68	60.14	77599.1	1146008.5	15.96	3.0349E-02	3.3832E-02	1.7513E-08
66	61.78	91152.7	1144327.5	17.96	3.4656E-02	3.9803E-02	2.4923E-08
64	63.07	109981.0	1136796.0	20.96	4.0820E-02	4.8348E-02	2.3782E-08
62	58.41	113718.0	1091756.5	21.96	4.2578E-02	5.2056E-02	2.0339E-08

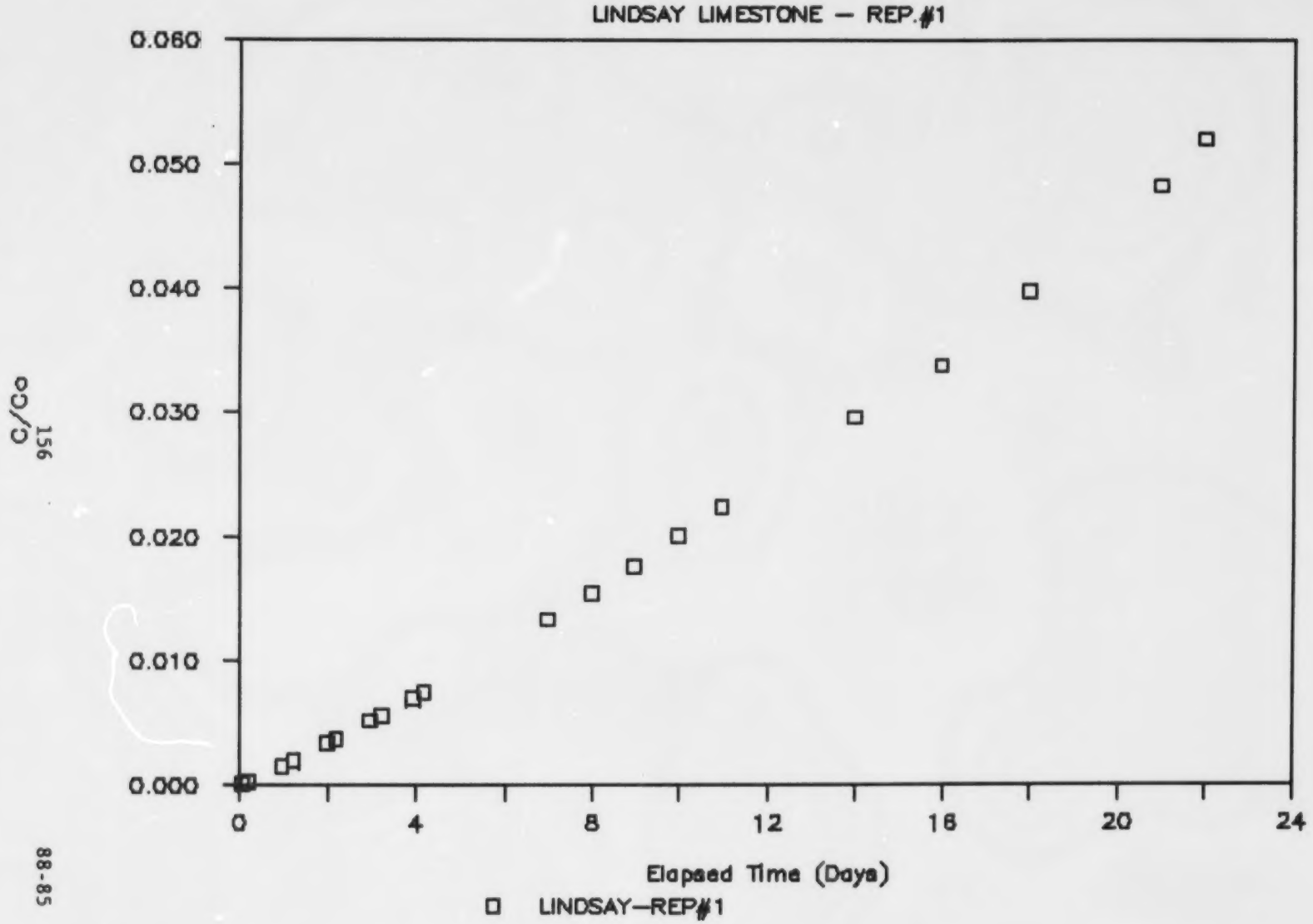
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#1
CORE THICKNESS (L) = 0.210 (cm)
CORE DIAMETER = 4.592 (cm)
SURFACE AREA (A) = 15.918 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.06	2.3314E-05
0.19	2.5147E-04
0.96	1.8391E-03
1.21	2.4317E-03
1.98	3.9975E-03
2.19	4.3262E-03
2.96	5.9303E-03
3.21	6.2530E-03
3.94	7.7135E-03
4.17	7.9588E-03
6.96	1.3969E-02
7.96	1.5793E-02
8.94	1.7619E-02
9.96	1.9575E-02
10.94	2.1205E-02
13.96	2.7323E-02
15.96	3.0349E-02
17.96	3.4656E-02
20.96	4.0820E-02
21.96	4.2578E-02

Regression Outputs:

Constant		1.49E-04
Std Err of Y Est		2.38E-04
R Squared		0.9996998
No. of Observations		18
Degrees of Freedom		16
X Coefficient(s)	1.93E-03	
Std Err of Coef.	8.37E-06	

DARLINGTON ROCK CORE DIFFUSION - H-3



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CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#2
CORE THICKNESS (L) = 0.204 (cm)
CORE DIAMETER = 4.500 (cm)
SURFACE AREA (A) = 15.904 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	62.50	69.87	121988.0	0.08	3.8767E-05	3.0223E-05	5.6086E-09
98	57.70	62.37	122094.5	0.88	2.4051E-05	1.9134E-05	-2.1290E-10
96	57.70	64.37	122152.5	1.10	3.3634E-05	2.7315E-05	5.0417E-10
94	56.13	73.00	121859.5	1.85	8.3496E-05	6.9251E-05	7.6948E-10
92	58.27	84.30	121674.5	2.88	1.2629E-04	1.0702E-04	4.8082E-10
90	56.77	101.03	121614.5	3.85	2.1016E-04	1.8205E-04	1.0008E-09
88	57.77	137.63	121688.5	6.88	3.7056E-04	3.2829E-04	6.1267E-10
86	59.57	154.23	121850.0	7.88	4.2868E-04	3.8862E-04	6.7277E-10
84	61.70	166.80	121548.0	8.88	4.6606E-04	4.3256E-04	4.3257E-10
82	56.97	188.37	121985.5	9.88	5.6675E-04	5.3884E-04	1.1654E-09
80	60.63	204.70	122144.0	10.88	6.0547E-04	5.9005E-04	4.4818E-10
78	63.77	271.67	121223.5	13.88	8.5837E-04	8.5796E-04	9.7571E-10

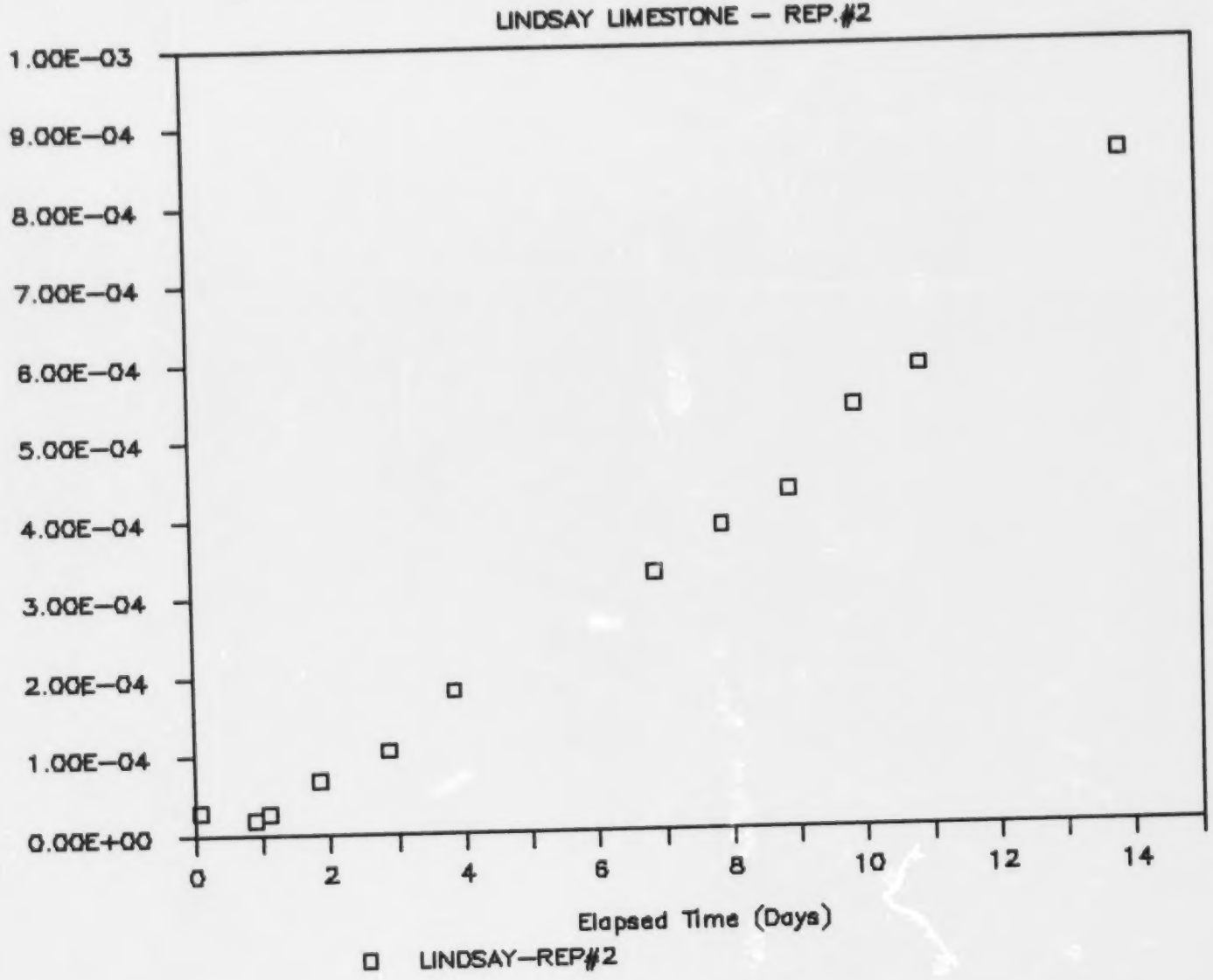
CL-26 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#2
CORE THICKNESS (L) = 0.204 (cm)
CORE DIAMETER = 4.500 (cm)
SURFACE AREA (A) = 15.904 (cm^2)

Time (Days)	CVL/CoA (cm^2)
0.08	3.8767E-05
0.98	2.4051E-05
1.10	3.3634E-05
1.85	8.3496E-05
2.88	1.2629E-04
3.85	2.1016E-04
6.88	3.7056E-04
7.88	4.2868E-04
8.88	4.6606E-04
9.88	5.6675E-04
10.88	6.0547E-04
13.88	8.5837E-04

Regression Output:

Constant	-4.45E-05
Std Err of Y Est	2.48E-05
R Squared	0.9921505
No. of Observations	10
Degrees of Freedom	8
X Coefficient(s)	6.17E-05
Std Err of Coef.	1.94E-06

DARLINGTON ROCK CORE DIFFUSION - CL-36



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H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.254 (cm)
CORE DIAMETER = 4.501 (cm)
SURFACE AREA (A) = 15.911 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	61.88	76.12	1139707.5	0.08	9.9732E-06	6.2476E-06	1.4429E-09
98	61.88	139.18	1132421.5	0.19	5.3397E-05	3.4132E-05	4.5690E-09
96	63.16	928.81	1136907.0	0.96	5.8346E-04	3.8073E-04	7.9674E-09
94	63.16	1152.93	1141730.0	1.19	7.1617E-04	4.7727E-04	6.6786E-09
92	65.57	2041.31	1142497.0	1.96	1.2699E-03	8.6471E-04	8.3238E-09
90	65.57	2294.69	1148956.5	2.19	1.3938E-03	9.7012E-04	6.2317E-09
88	61.62	3168.51	1150588.5	2.94	1.8967E-03	1.3502E-03	7.7618E-09
86	61.62	3492.60	1146009.0	3.19	2.0552E-03	1.4970E-03	7.3348E-09
84	61.67	6994.57	1145191.0	5.96	4.0591E-03	3.0271E-03	8.3734E-09
82	61.67	7425.11	1146260.5	6.19	4.2046E-03	3.2121E-03	7.3220E-09
80	61.30	8269.93	1136562.5	6.96	4.6120E-03	3.6114E-03	6.1224E-09
78	62.33	9722.25	1137935.5	7.96	5.2853E-03	4.2447E-03	7.7932E-09
76	69.58	11149.9	1135161.5	8.96	5.9215E-03	4.8808E-03	7.3632E-09
74	58.51	12787.2	1116779.0	9.96	6.7323E-03	5.6991E-03	9.3850E-09
72	63.53	17603.7	1122866.0	12.96	8.9775E-03	7.8109E-03	8.6621E-09
70	57.39	19076.2	1078905.0	13.96	9.8495E-03	8.8144E-03	1.0093E-08

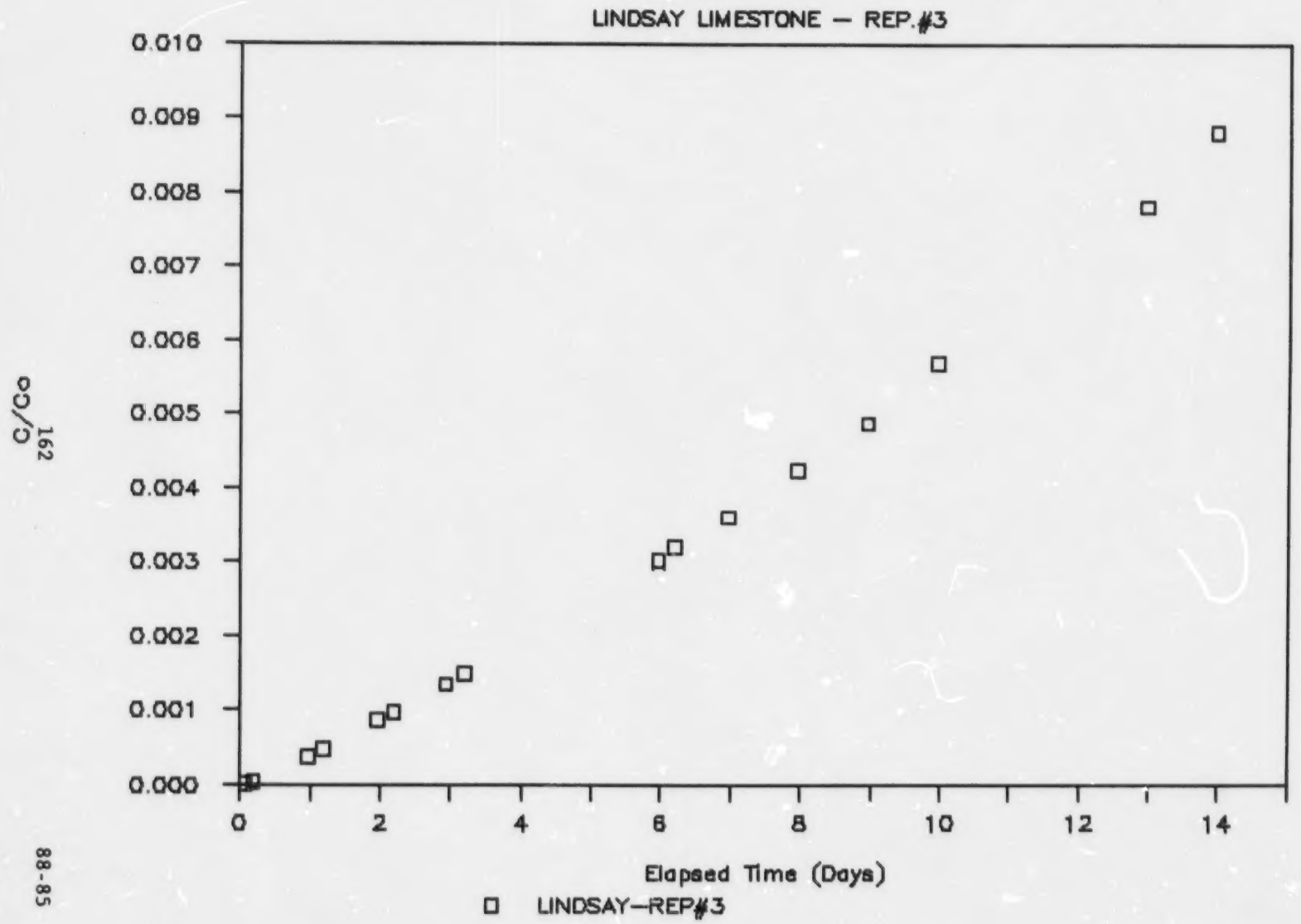
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.254 (cm)
CORE DIAMETER = 4.501 (cm)
SURFACE AREA (A) = 15.911 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.08	9.9732E-06
0.19	5.3397E-05
0.96	5.8346E-04
1.19	7.1617E-04
1.96	1.2699E-03
2.19	1.3938E-03
2.94	1.8967E-03
3.19	2.0552E-03
5.96	4.0591E-03
6.19	4.2046E-03
6.96	4.6120E-03
7.96	5.2853E-03
8.96	5.9215E-03
9.96	6.7323E-03
12.96	8.9775E-03
13.96	9.8495E-03

Regression Output:

Constant		-1.63E-04
Std Err of Y Est		1.09E-04
R Squared		0.9987763
No. of Observations		14
Degrees of Freedom		12
X Coefficient(s)	7.01E-04	
Std Err of Coef.	7.09E-06	

DARLINGTON ROCK CORE DIFFUSION - H-3



CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.254 (cm)
CORE DIAMETER = 4.501 (cm)
SURFACE AREA (A) = 15.911 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	55.63	63.63	121036.0	0.21	5.2780E-05	3.3063E-05	2.9090E-09
98	49.37	60.60	121347.0	0.96	7.2418E-05	4.6291E-05	3.0306E-10
96	51.43	70.27	120728.5	1.96	1.1963E-04	7.8060E-05	5.4637E-10
94	64.40	89.43	120735.5	2.96	1.5563E-04	1.0371E-04	4.1667E-10
92	64.40	128.87	121325.5	7.96	3.9041E-04	2.6583E-04	5.4348E-10
90	64.40	135.23	121024.5	8.96	4.2064E-04	2.9278E-04	3.4993E-10
88	70.00	149.20	120089.0	9.96	4.6350E-04	3.2995E-04	4.9608E-10
86	54.93	150.97	120833.5	10.96	5.4583E-04	3.9759E-04	9.5283E-10
84	70.27	193.43	122287.5	13.96	6.7563E-04	5.0386E-04	5.0080E-10
82	62.63	200.07	121679.5	15.96	7.3965E-04	5.6505E-04	3.7048E-10
80	60.67	220.40	120800.5	17.96	8.4474E-04	6.6146E-04	6.0812E-10
78	59.87	252.10	120068.5	20.96	9.9724E-04	8.0090E-04	5.8835E-10
76	58.17	268.47	120325.0	22.96	1.0607E-03	8.7431E-04	3.6740E-10
74	59.53	287.27	121885.5	24.96	1.1041E-03	9.3469E-04	2.5129E-10
72	58.73	328.43	122036.0	27.96	1.2707E-03	1.1055E-03	6.4242E-10
70	63.87	357.10	121567.0	30.96	1.3484E-03	1.2067E-03	2.9986E-10
68	57.13	407.93	122194.0	34.96	1.5589E-03	1.4361E-03	6.0911E-10
66	57.63	448.70	122520.0	37.96	1.6823E-03	1.5967E-03	4.7591E-10
64	58.27	494.50	121948.5	41.96	1.8282E-03	1.7894E-03	4.2228E-10
62	56.43	587.47	121596.5	48.96	2.1622E-03	2.1846E-03	5.5225E-10
60	58.23	731.60	124258.0	56.96	2.5964E-03	2.7108E-03	6.2826E-10
58	56.30	839.10	127139.5	62.96	2.8516E-03	3.0799E-03	4.9216E-10

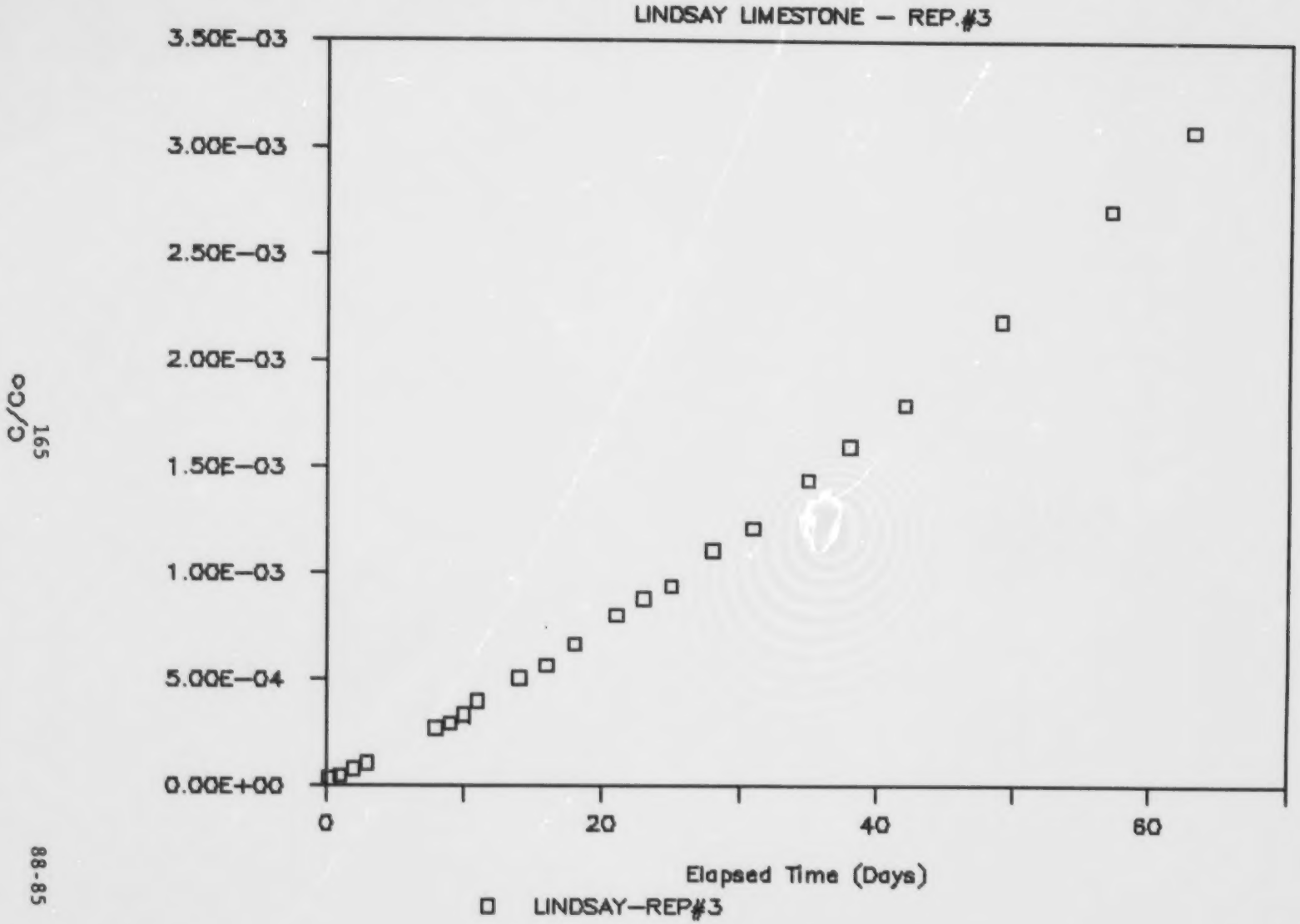
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.254 (cm)
CORE DIAMETER = 4.501 (cm)
SURFACE AREA (A) = 15.911 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.21	5.2780E-05
0.96	7.2418E-05
1.96	1.1963E-04
2.96	1.5563E-04
7.96	3.9041E-04
8.96	4.2064E-04
9.96	4.6350E-04
10.96	5.4583E-04
13.96	6.7563E-04
15.96	7.3965E-04
17.96	8.4474E-04
20.96	9.9724E-04
22.96	1.0607E-03
24.96	1.1041E-03
27.96	1.2707E-03
30.96	1.3484E-03
34.96	1.5589E-03
37.96	1.6823E-03
41.96	1.8282E-03
48.96	2.1622E-03
56.96	2.5964E-03
62.96	2.8516E-03

Regression Output:

Constant		7.32E-05
Std Err of Y Est		7.17E-05
R Squared		0.998395
No. of Observations		19
Degrees of Freedom		17
X Coefficient(s)	4.41E-05	
Std Err of Coef.	4.29E-07	

DARLINGTON ROCK CORE DIFFUSION – CL-36



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CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#3
NaCl RESERVOIR
CORE THICKNESS (L) = 0.254 (cm)
CORE DIAMETER = 4.501 (cm)
SURFACE AREA (A) = 15.911 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	54.80	69.90	127317.0	0.21	9.4705E-05	5.9326E-05	5.2196E-09
98	56.70	88.40	127365.5	0.96	1.9477E-04	1.2450E-04	1.5442E-09
96	67.07	116.20	126578.0	1.98	2.9757E-04	1.9417E-04	1.1665E-09
94	54.00	120.00	126847.0	2.96	3.9055E-04	2.6027E-04	1.0981E-09
92	54.40	135.80	128091.5	3.94	4.6684E-04	3.1788E-04	9.0110E-10
90	68.47	177.93	127528.0	6.98	6.1691E-04	4.2939E-04	5.7134E-10
88	55.37	192.77	127371.5	8.96	7.5802E-04	5.3960E-04	8.2487E-10
86	54.77	217.00	128271.5	10.94	8.6852E-04	6.3264E-04	6.4592E-10
84	53.20	247.90	128707.0	13.96	1.0147E-03	7.5668E-04	5.6005E-10
82	67.33	290.23	128286.0	16.96	1.1378E-03	8.6922E-04	4.7512E-10
80	66.30	396.97	127582.0	27.96	1.6558E-03	1.2966E-03	5.4506E-10
78	56.83	397.40	127714.5	28.96	1.6609E-03	1.3339E-03	5.8912E-11
76	61.97	475.67	128828.0	34.96	1.9489E-03	1.6064E-03	5.5554E-10
74	57.13	549.73	129233.0	43.00	2.2524E-03	1.9067E-03	4.3684E-10
72	52.50	633.03	128016.5	49.96	2.6071E-03	2.2683E-03	5.8996E-10
70	54.83	704.77	128232.0	56.00	2.8331E-03	2.5353E-03	4.3291E-10
68	55.70	770.27	128284.0	63.00	3.0246E-03	2.7863E-03	3.1666E-10
66	54.77	862.53	128305.5	70.02	3.3179E-03	3.1491E-03	4.8358E-10
64	56.93	954.23	129038.5	77.00	3.5537E-03	3.4784E-03	3.9108E-10

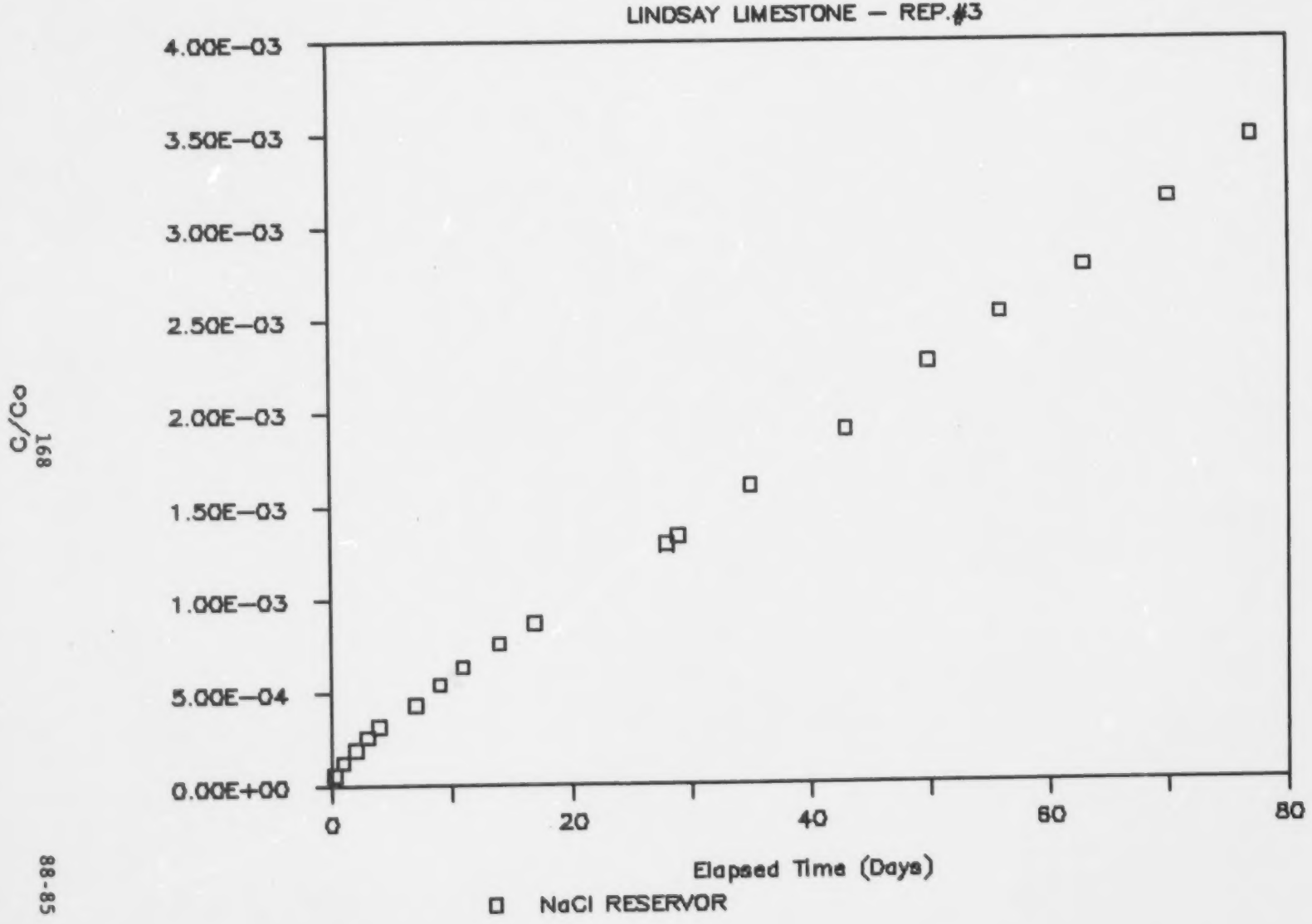
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#3
NaCl RESERVOIR
CORE THICKNESS (L) = 0.254 (cm)
CORE DIAMETER = 4.501 (cm)
SURFACE AREA (A) = 15.911 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.21	9.4705E-05
0.96	1.9477E-04
1.98	2.9757E-04
2.96	3.9055E-04
3.94	4.6684E-04
6.98	6.1691E-04
8.96	7.5802E-04
10.94	8.6852E-04
13.96	1.0147E-03
16.96	1.1378E-03
27.96	1.6558E-03
28.96	1.6609E-03
34.96	1.9489E-03
43.00	2.2524E-03
49.96	2.6071E-03
56.00	2.8331E-03
63.00	3.0246E-03
70.02	3.3179E-03
77.00	3.5537E-03

Regression Output:

Constant		5.20E-04
Std Err of Y Est		5.03E-05
R Squared		0.9964598
No. of Observations		10
Degrees of Freedom		8
X Coefficient(s)	4.02E-05	
Std Err of Coef.	8.47E-07	

DARLINGTON ROCK CORE DIFFUSION - CL-36



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H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#4
CORE THICKNESS (L) = 0.265 (cm)
CORE DIAMETER = 4.498 (cm)
SURFACE AREA (A) = 15.890 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	48.76	5663.11	1029566.0	0.21	4.5473E-03	2.7267E-03	2.5062E-07
98	51.13	13277.0	1043926.0	0.96	1.0354E-02	6.3350E-03	8.9602E-08
96	45.87	23544.4	1037632.5	1.96	1.8129E-02	1.1324E-02	8.9994E-08
94	57.67	30195.4	1037425.0	2.96	2.2772E-02	1.4526E-02	5.3733E-08
92	57.67	53030.0	1036049.5	7.96	3.9225E-02	2.5566E-02	3.8088E-08
90	57.67	56445.8	1036473.0	8.96	4.0830E-02	2.7203E-02	1.8576E-08
88	55.13	57560.9	1030725.0	9.96	4.0941E-02	2.7897E-02	1.2837E-09
86	56.11	61218.9	1029090.5	10.96	4.2623E-02	2.9719E-02	1.9463E-08
84	58.01	66370.8	1040603.0	13.96	4.4638E-02	3.1864E-02	7.7735E-09
82	57.30	68415.9	1038245.5	15.96	4.5021E-02	3.2922E-02	2.2193E-09
80	57.96	71543.2	1035097.0	17.96	4.6072E-02	3.4533E-02	6.0802E-09
78	53.62	75434.7	1036086.0	20.96	4.7323E-02	3.6380E-02	4.8259E-09
76	57.09	78476.3	1025587.0	22.96	4.8459E-02	3.8234E-02	6.5753E-09
74	53.96	82870.5	1026961.5	24.96	4.9763E-02	4.0323E-02	7.5447E-09
72	55.13	87602.0	1032334.5	27.96	5.0917E-02	4.2405E-02	4.4531E-09
70	53.16	94393.2	1034350.5	30.96	5.3240E-02	4.5606E-02	8.9610E-09
68	55.71	102554.0	1041408.0	34.96	5.5810E-02	4.9214E-02	7.4382E-09
66	56.44	109604.0	1033867.5	37.96	5.8317E-02	5.2982E-02	9.6692E-09
64	53.34	116311.0	1026577.5	41.96	6.0439E-02	5.6627E-02	6.1419E-09
62	55.29	134136.0	1030157.5	48.96	6.7292E-02	6.5081E-02	1.1331E-08
60	55.19	158933.0	1044605.5	56.96	7.6098E-02	7.6051E-02	1.2740E-08
58	51.10	173223.0	1055018.5	62.96	7.9388E-02	8.2075E-02	6.3463E-09

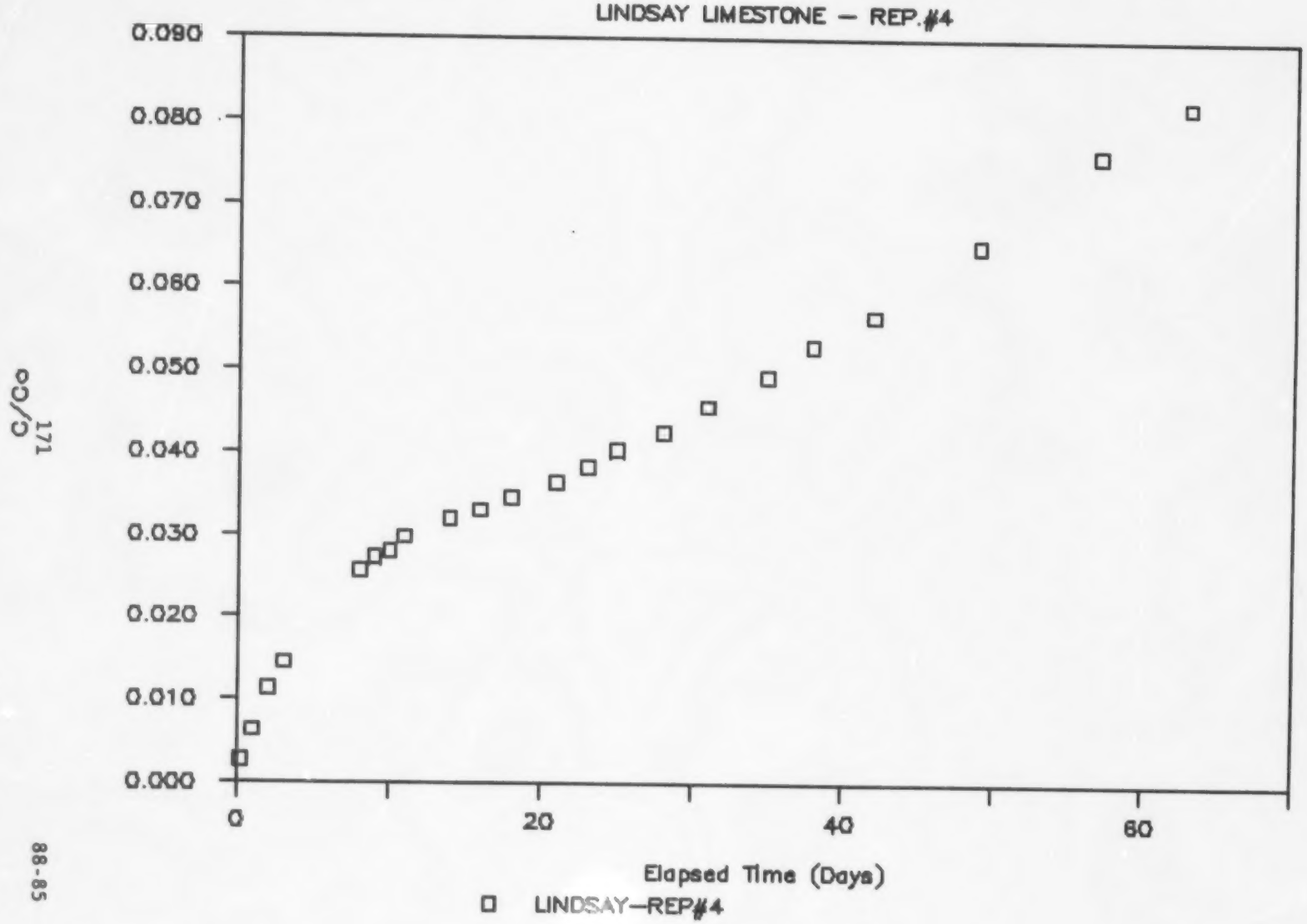
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#4
CORE THICKNESS (L) = 0.265 (cm)
CORE DIAMETER = 4.498 (cm)
SURFACE AREA (A) = 15.890 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.21	4.5473E-03
0.96	1.0354E-02
1.96	1.8129E-02
2.96	2.2772E-02
7.96	3.9225E-02
8.96	4.0830E-02
9.96	4.0941E-02
10.96	4.2623E-02
13.96	4.4638E-02
15.96	4.5021E-02
17.96	4.6072E-02
20.96	4.7323E-02
22.96	4.8459E-02
24.96	4.9763E-02
27.96	5.0917E-02
30.96	5.3240E-02
34.96	5.5810E-02
37.96	5.8317E-02
41.96	6.0439E-02
48.96	6.7292E-02
56.96	7.6098E-02
62.96	7.9388E-02

Regression Output:

Constant		3.29E-02
Std Err of Y Est		1.65E-03
R Squared		0.9809092
No. of Observations		16
Degrees of Freedom		14
X Coefficient(s)	7.08E-04	
Std Err of Coef.	2.64E-05	

DARLINGTON ROCK CORE DIFFUSION – H-3



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H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#5
CORE THICKNESS (L) - 0.253 (cm)
CORE DIAMETER - 4.500 (cm)
SURFACE AREA (A) - 15.904 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	52.76	3017.67	1028181.5	0.21	2.2937E-03	1.4419E-03	1.2642E-07
98	45.70	6708.23	1049923.5	0.96	4.9465E-03	3.1730E-03	4.0939E-08
96	48.80	12822.8	1057173.5	1.96	9.2267E-03	6.0419E-03	4.9539E-08
94	58.97	15813.3	1053835.0	2.96	1.1178E-02	7.4752E-03	2.2581E-08
92	58.97	29965.0	1043029.0	7.96	2.0982E-02	1.4337E-02	2.2695E-08
90	58.97	32542.2	1040110.5	8.96	2.2357E-02	1.5616E-02	1.5918E-08
88	56.03	33042.7	1027147.5	9.96	2.2479E-02	1.6058E-02	1.4131E-09
86	56.16	35383.5	1025720.0	10.96	2.3560E-02	1.7222E-02	1.2508E-08
84	61.38	39197.6	1041617.5	13.96	2.5104E-02	1.8787E-02	5.9576E-09
82	60.75	41863.7	1042267.5	15.96	2.6160E-02	2.0055E-02	6.1100E-09
80	53.85	43580.3	1043425.0	17.96	2.6545E-02	2.0859E-02	2.2254E-09
78	52.78	46471.3	1025881.5	20.96	2.8073E-02	2.2625E-02	5.8951E-09
76	57.44	47822.9	1014942.5	22.96	2.8450E-02	2.3532E-02	2.1841E-09
74	53.17	51165.0	1030821.5	24.96	2.9185E-02	2.4793E-02	4.2550E-09
72	54.29	54125.5	1033270.5	27.96	2.9970E-02	2.6166E-02	3.0255E-09
70	60.59	57696.2	1032809.5	30.96	3.1072E-02	2.7904E-02	4.2527E-09
68	58.84	63523.4	1038529.0	34.96	3.3054E-02	3.0557E-02	5.7343E-09
66	56.84	67772.6	1033395.0	37.96	3.4401E-02	3.2766E-02	5.1961E-09
64	57.06	71203.9	1031189.5	41.96	3.5123E-02	3.4499E-02	2.0913E-09
62	49.45	80377.9	1034059.0	48.96	3.8310E-02	3.8843E-02	5.2688E-09
60	52.74	92240.8	1050241.5	56.96	4.1892E-02	4.3891E-02	5.1827E-09
58	52.95	101232.0	1060723.0	62.96	4.4006E-02	4.7696E-02	4.0777E-09

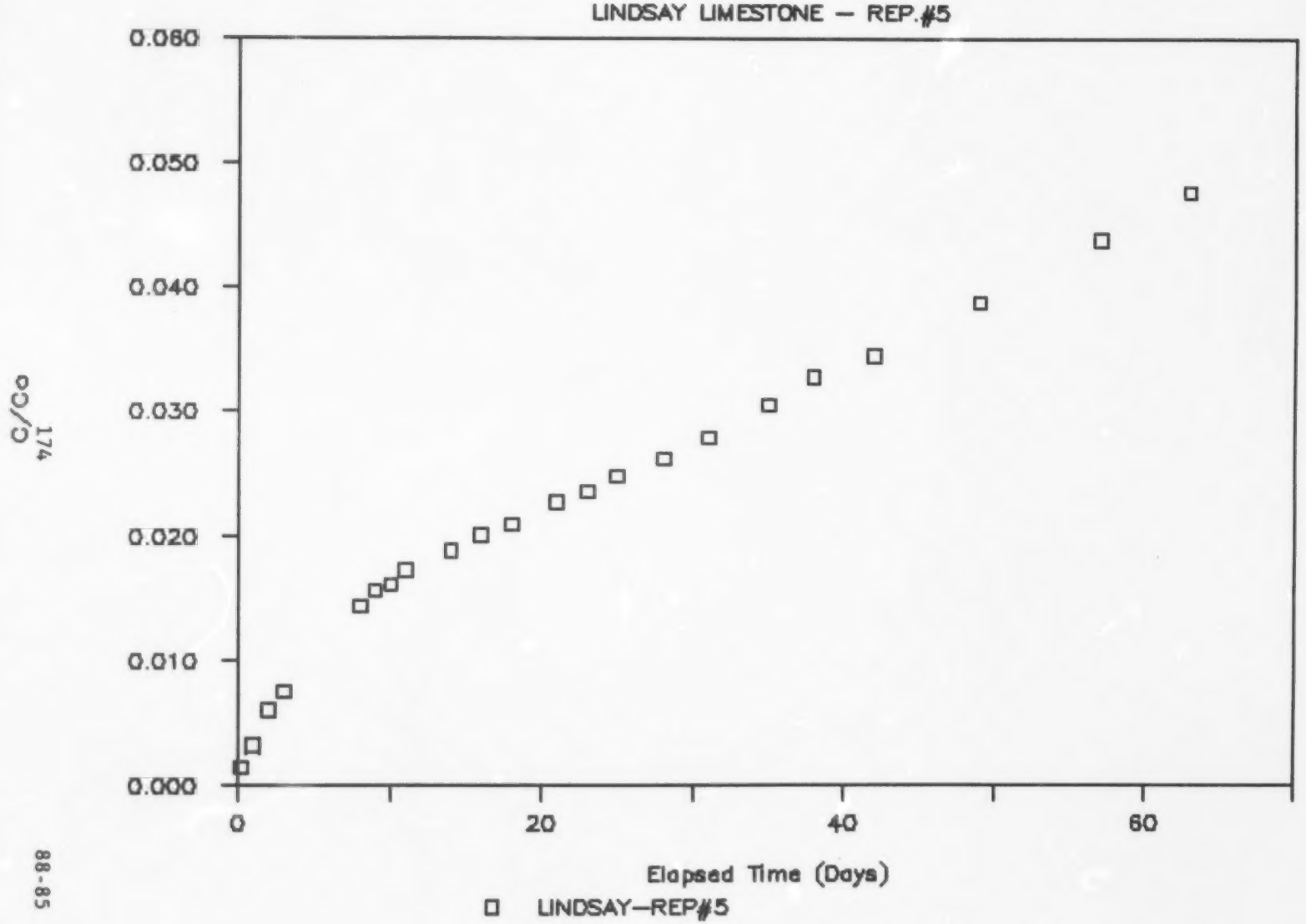
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#5
CORE THICKNESS (L) = 0.253 (cm)
CORE DIAMETER = 4.500 (cm)
SURFACE AREA (A) = 15.904 (cm^2)

Time (days)	CV/CoA (cm^2)
0.21	2.2907E-03
0.96	4.9465E-03
1.96	9.2267E-03
2.96	1.1178E-02
7.96	2.0992E-02
8.96	2.2357E-02
9.96	2.2479E-02
10.96	2.3560E-02
13.96	2.5104E-02
15.96	2.6160E-02
17.96	2.6545E-02
20.96	2.9073E-02
22.96	2.9450E-02
24.96	2.9185E-02
27.96	2.9970E-02
30.96	3.1072E-02
34.96	3.3054E-02
37.96	3.4401E-02
41.96	3.5123E-02
48.96	3.8310E-02
56.96	4.1892E-02
62.96	4.4006E-02

Regression Output:

Constant		1.96E-02
Std Err of Y Est		3.27E-04
R Squared		0.9973349
No. of Observations		15
Degrees of Freedom		13
X Coefficient(s)	3.85E-04	
Std Err of Coef.	5.52E-06	

DARLINGTON ROCK CORE DIFFUSION – H-3



CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#6
CORE THICKNESS (L) = 0.211 (cm)
CORE DIAMETER = 4.493 (cm)
SURFACE AREA (A) = 15.855 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	57.33	59.73	121493.0	0.07	1.3151E-05	9.8818E-06	2.1744E-09
98	57.33	58.83	121267.0	0.21	8.0699E-06	6.1876E-06	-4.2005E-10
96	57.33	61.13	122176.5	0.98	1.9877E-05	1.5559E-05	1.7748E-10
94	58.67	79.60	122485.0	1.96	1.0693E-04	8.5480E-05	1.0281E-09
92	54.10	89.63	122080.0	2.96	1.7829E-04	1.4562E-04	8.2589E-10
90	54.17	100.53	122380.5	3.96	2.2696E-04	1.8949E-04	5.6334E-10
88	58.60	134.00	122945.0	6.98	3.5928E-04	3.0679E-04	5.0712E-10
86	56.53	171.50	123026.5	9.98	5.3502E-04	4.6747E-04	6.7800E-10
84	58.40	211.67	122393.0	13.98	7.0029E-04	6.2644E-04	4.7819E-10
82	60.07	245.97	122285.0	16.98	8.2989E-04	7.6048E-04	5.0002E-10
80	55.67	297.40	122467.5	20.97	1.0512E-03	9.8736E-04	6.4196E-10
78	52.77	385.13	121834.0	28.08	1.4165E-03	1.3646E-03	5.9463E-10

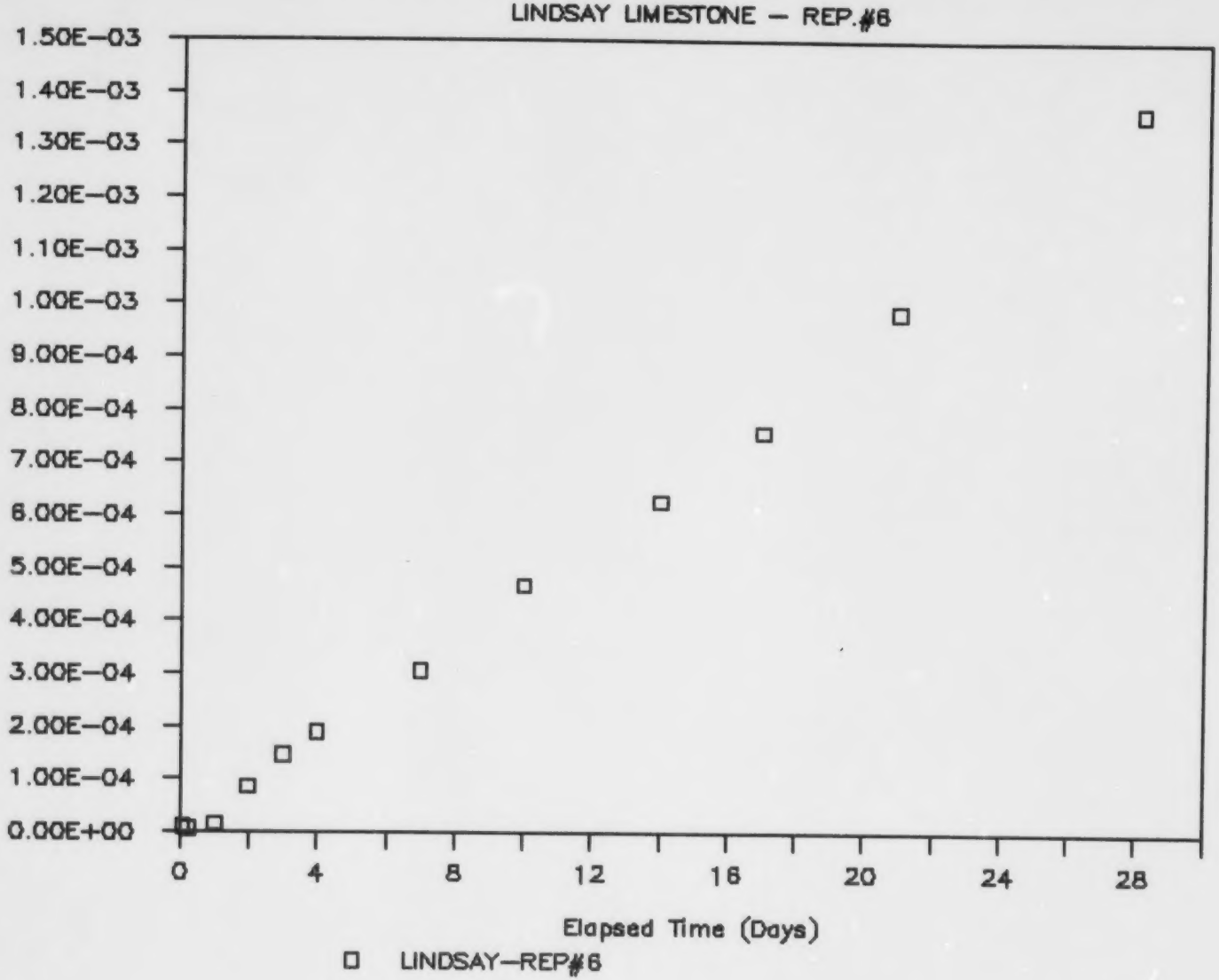
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
LINDSAY LIMESTONE - REP.#6
CORE THICKNESS (L) = 0.211 (cm)
CORE DIAMETER = 4.491 (cm)
SURFACE AREA (A) = 15.855 (cm^2)

Time (days)	DVL/CoA (cm^2)
0.07	1.3151E-05
0.21	8.0699E-06
0.98	1.9877E-05
1.96	1.0697E-04
2.96	1.7829E-04
3.96	2.2696E-04
6.98	3.5928E-04
9.98	5.3502E-04
13.98	7.0029E-04
16.98	8.2989E-04
20.77	1.0512E-03
28.08	1.4165E-03

Regression Output:

Constant		1.05E-05
Std Err of Y Est		2.21E-05
R Squared		0.997902
No. of Observations		10
Degrees of Freedom		8
X Coefficient(s)	4.98E-05	
Std Err of Coef.	8.07E-07	

DARLINGTON ROCK CORE DIFFUSION – CL-36



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CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#1
CORE THICKNESS (L) - 0.198 (cm)
CORE DIAMETER - 4.507 (cm)
SURFACE AREA (A) - 15.954 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	62.50	62.51	121988.0	0.08	5.0895E-08	4.1009E-08	7.3633E-12
98	57.70	68.50	122094.5	0.88	5.3818E-05	4.4249E-05	7.7788E-10
96	57.70	70.57	122152.5	1.10	6.2795E-05	5.2705E-05	4.7225E-10
94	56.13	80.13	121359.5	1.85	1.1541E-04	9.8926E-05	8.1193E-10
92	58.27	93.53	121674.5	2.88	1.6552E-04	1.4496E-04	5.6310E-10
90	56.77	110.07	121614.5	3.85	2.4488E-04	2.1924E-04	9.4696E-10
88	57.77	157.77	121688.5	6.88	4.4896E-04	4.1108E-04	7.7955E-10
86	59.57	168.17	121850.0	7.88	4.7587E-04	4.4585E-04	3.1140E-10
84	61.70	190.40	121548.0	8.88	5.5220E-04	5.2969E-04	8.8355E-10
82	56.97	207.51	121985.5	9.88	6.2825E-04	6.1733E-04	8.8011E-10
80	60.63	225.00	122144.0	10.88	6.6838E-04	6.7319E-04	4.6455E-10
78	63.77	287.27	121223.5	13.88	8.9286E-04	9.2234E-04	8.6604E-10

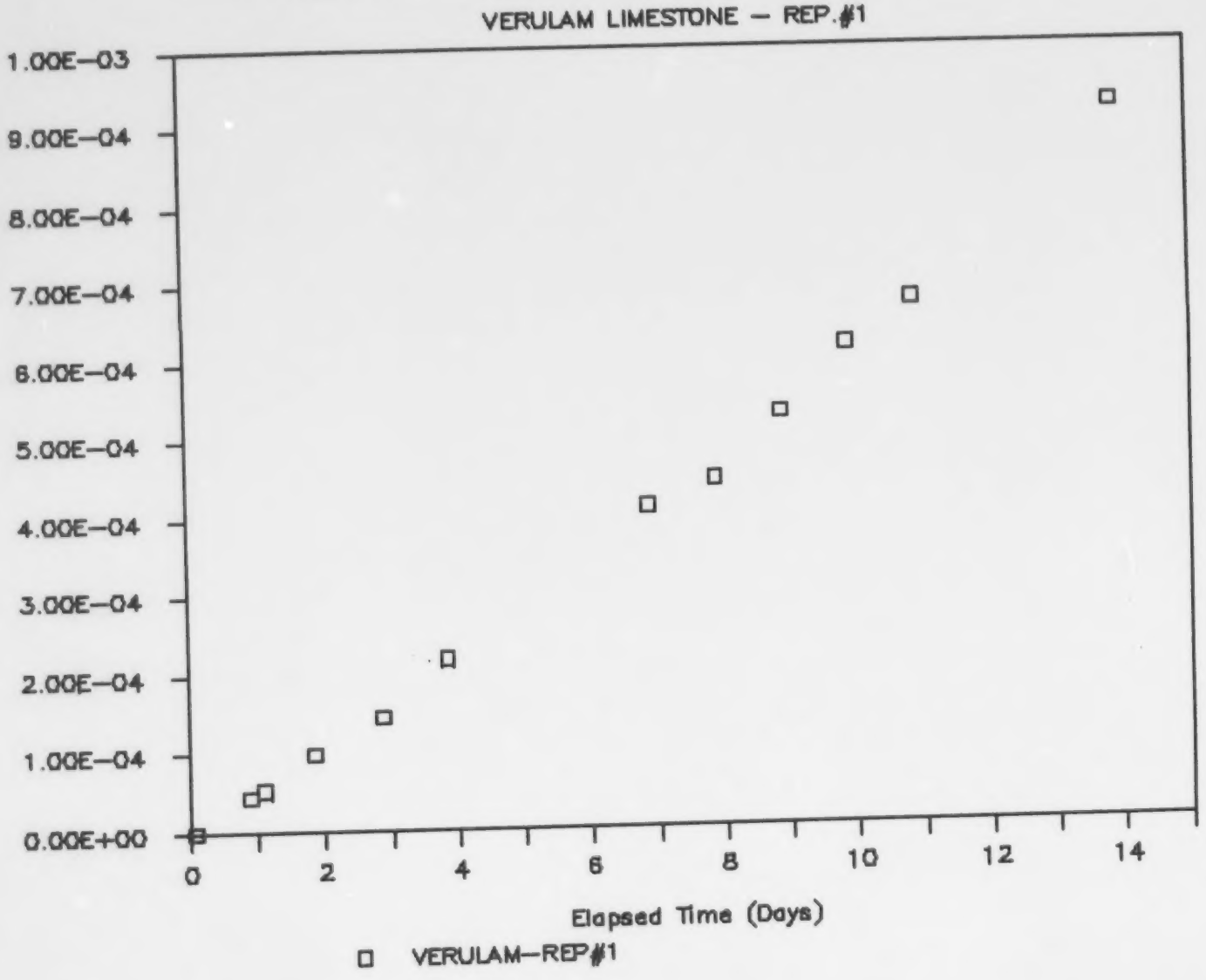
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#1
CORE THICKNESS (L) = 0.198 (cm)
CORE DIAMETER = 4.507 (cm)
SURFACE AREA (A) = 15.954 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.08	5.0895E-08
0.88	5.3819E-05
1.10	6.2795E-05
1.85	1.1541E-04
2.88	1.6552E-04
3.85	2.4488E-04
6.88	4.4896E-04
7.88	4.7587E-04
8.89	5.5220E-04
9.88	6.2825E-04
10.88	6.6838E-04
13.88	8.9286E-04

Regression Outputs:

Constant		-8.51E-06
Std Err of Y Est		1.37E-05
R Squared		0.9977587
No. of Observations		10
Degrees of Freedom		8
X Coefficient(s)	6.79E-05	
Std Err of Coef.	1.07E-06	

DARLINGTON ROCK CORE DIFFUSION – CL-36



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H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#2
CORE THICKNESS (L) = 0.218 (cm)
CORE DIAMETER = 4.500 (cm)
SURFACE AREA (A) = 15.904 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	56.88	66.10	1161760.0	0.06	5.4393E-06	3.9683E-06	1.0493E-09
98	56.88	88.85	1157651.5	0.19	1.8549E-05	1.3809E-05	1.1672E-09
96	56.88	332.89	1156264.0	0.96	1.5706E-04	1.1936E-04	2.0820E-09
94	60.47	440.14	1159179.5	1.21	2.1102E-04	1.6378E-04	2.4979E-09
92	58.55	701.83	1163404.0	1.98	3.4865E-04	2.7648E-04	2.0688E-09
90	58.55	766.79	1157515.0	2.19	3.7742E-04	3.0595E-04	1.5858E-09
88	63.59	1083.63	1152504.0	2.96	5.3382E-04	4.4256E-04	2.3508E-09
86	60.00	1164.87	1157556.5	3.21	5.6260E-04	4.7727E-04	1.3326E-09
84	54.95	1489.08	1158972.5	3.94	7.1240E-04	6.1874E-04	2.3751E-09
82	62.37	1603.43	1153475.0	4.17	7.5086E-04	6.6804E-04	1.9353E-09
80	62.37	2919.60	1149666.0	6.96	1.3627E-03	1.2427E-03	2.5381E-09
78	61.88	3492.35	1153877.5	7.96	1.5894E-03	1.4866E-03	2.6235E-09
76	67.95	3925.25	1145340.5	8.94	1.7543E-03	1.6840E-03	1.9477E-09
74	65.44	4423.21	1137505.5	9.96	1.9430E-03	1.9156E-03	2.1417E-09
72	66.97	5050.89	1144107.5	10.94	2.1497E-03	2.1782E-03	2.4406E-09
70	60.90	6729.82	1143426.0	13.96	2.7982E-03	2.9164E-03	2.4855E-09
68	60.14	8066.56	1146008.5	15.96	3.2561E-03	3.4934E-03	2.6497E-09
66	61.78	9280.50	1144327.5	17.96	3.6442E-03	4.0282E-03	2.2460E-09
64	63.07	11193.2	1136796.0	20.96	4.2947E-03	4.8957E-03	2.5098E-09

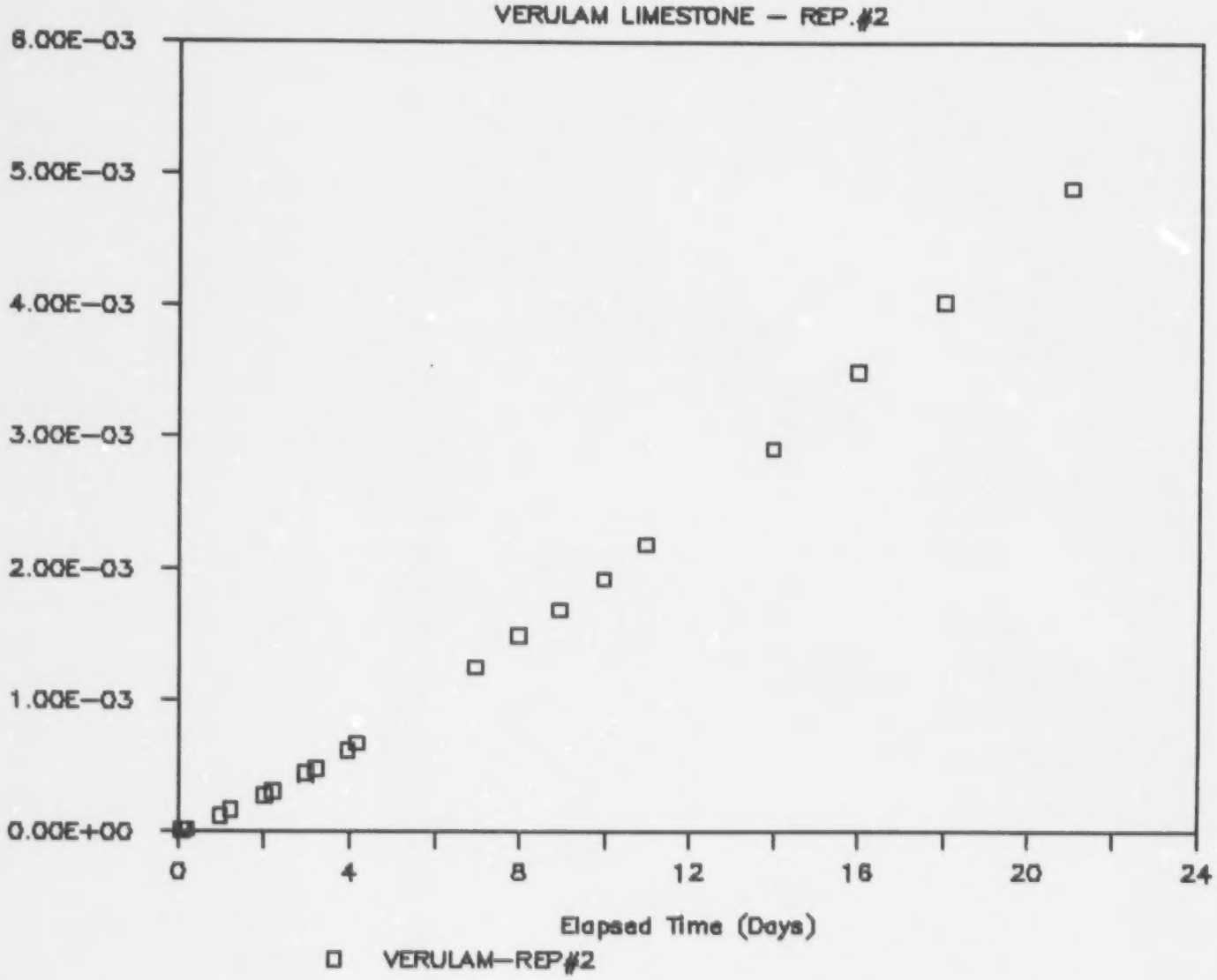
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#2
CORE THICKNESS (L) = 0.218 (cm)
CORE DIAMETER = 4.500 (cm)
SURFACE AREA (A) = 15.904 (cm^2)

Time (days)	DVL/CoA (cm^2)
0.06	5.4393E-06
0.19	1.8549E-05
0.96	1.5706E-04
1.21	2.1102E-04
1.98	3.4865E-04
2.19	3.7742E-04
2.96	5.3382E-04
3.21	5.6260E-04
3.94	7.1240E-04
4.17	7.5086E-04
6.96	1.3627E-03
7.96	1.5894E-03
8.94	1.7543E-03
9.96	1.9430E-03
10.94	2.1497E-03
13.96	2.7932E-03
15.96	3.2561E-03
17.96	3.6442E-03
20.96	4.2947E-03

Regression Output:

Constant	-8.73E-05
Std Err of Y Est	2.67E-05
R Squared	0.9996087
No. of Observations	16
Degrees of Freedom	14
X Coefficient(s)	2.08E-04
Std Err of Coef.	1.10E-06

DARLINGTON ROCK CORE DIFFUSION – H-3



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H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.246 (cm)
CORE DIAMETER = 4.508 (cm)
SURFACE AREA (A) = 15.961 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	61.88	75.65	1139707.5	0.08	9.3113E-06	6.0414E-06	1.3471E-09
98	61.88	94.95	1132421.5	0.19	2.2056E-05	1.4602E-05	1.3410E-09
96	63.16	394.14	1136907.0	0.96	2.1539E-04	1.4557E-04	2.9060E-09
94	63.16	487.85	1141730.0	1.19	2.6947E-04	1.8600E-04	2.7215E-09
92	65.57	824.68	1142497.0	1.96	4.7110E-04	3.3223E-04	3.0307E-09
90	65.57	908.66	1148956.5	2.19	5.0896E-04	3.6691E-04	1.9055E-09
88	61.62	1260.56	1150588.5	2.94	7.0669E-04	5.2104E-04	3.0514E-09
86	61.62	1396.36	1146009.0	3.19	7.7193E-04	5.8237E-04	3.0202E-09
84	61.67	2815.83	1145191.0	5.96	1.5569E-03	1.2026E-03	3.2799E-09
82	61.67	2938.99	1146260.5	6.19	1.5863E-03	1.2552E-03	1.4801E-09
80	61.30	3270.02	1136562.5	6.96	1.7406E-03	1.4117E-03	2.3191E-09
78	62.33	3985.82	1137935.5	7.96	2.0726E-03	1.7240E-03	3.8429E-09
76	69.58	4586.45	1135161.5	8.96	2.3306E-03	1.9896E-03	2.9858E-09
74	58.51	5232.90	1116779.0	9.96	2.6424E-03	2.3168E-03	3.6085E-09
72	63.53	7132.43	1122866.0	12.96	3.4932E-03	3.1479E-03	3.2827E-09
70	57.39	7776.03	1078905.0	13.96	3.8594E-03	3.5773E-03	4.2386E-09

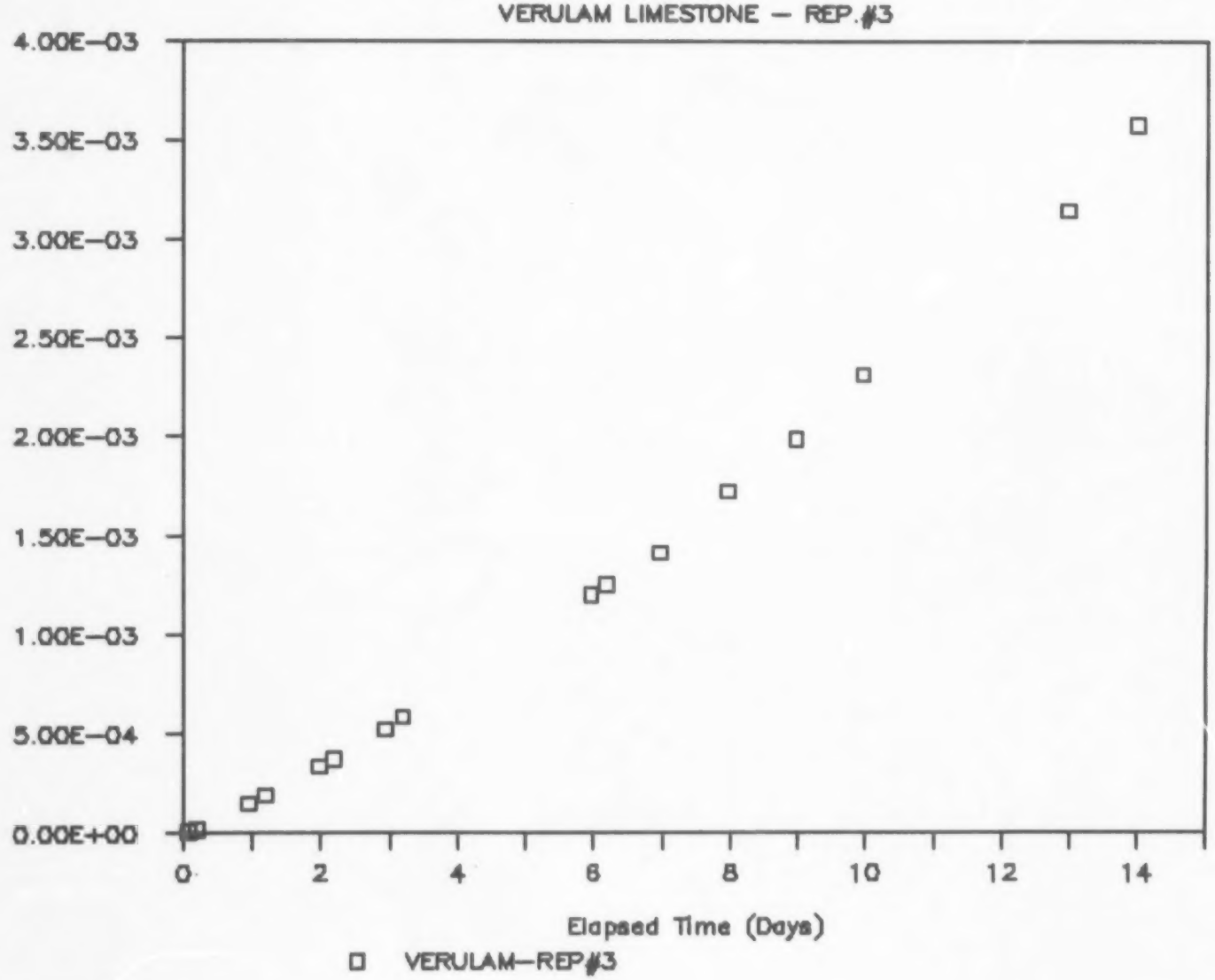
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.246 (cm)
CORE DIAMETER = 4.508 (cm)
SURFACE AREA (A) = 15.961 (cm^2)

Time (days)	DVL/DoA (cm^2)
0.08	9.3117E-06
0.19	2.2056E-05
0.96	2.1539E-04
1.19	2.6947E-04
1.96	4.7110E-04
2.19	5.0896E-04
2.94	7.0669E-04
3.19	7.7193E-04
5.96	1.5569E-03
6.19	1.5863E-03
6.96	1.7406E-03
7.96	2.0726E-03
8.96	2.3306E-03
9.96	2.6424E-03
12.96	3.4932E-03
13.96	3.8594E-03

Regression Output:

Constant		-1.10E-04
Std Err of Y Est		4.59E-05
R Squared		0.9995683
No. of Observations		13
Degrees of Freedom		11
X Coefficient(s)	2.78E-04	
Std Err of Coef.	3.17E-06	

DARLINGTON ROCK CORE DIFFUSION – H-3



CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.246 (cm)
CORE DIAMETER = 4.508 (cm)
SURFACE AREA (A) = 15.961 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	55.63	66.47	121036.0	0.21	6.9050E-05	4.4801E-05	3.8056E-09
98	49.37	68.77	121347.0	0.96	1.2079E-04	7.9969E-05	7.9842E-10
96	51.43	81.37	120728.5	1.96	1.8355E-04	1.2405E-04	7.2637E-10
94	64.40	105.20	120735.5	2.96	2.4492E-04	1.6905E-04	7.1039E-10
92	64.40	171.17	121325.5	7.96	6.2425E-04	4.4025E-04	8.7808E-10
90	64.40	187.23	121024.5	8.96	7.0429E-04	5.0773E-04	9.2633E-10
88	70.00	203.37	120089.0	9.96	7.5359E-04	5.5562E-04	5.7065E-10
86	54.93	210.40	120833.5	10.96	8.5310E-04	6.4362E-04	1.1517E-09
84	70.27	263.20	122287.5	13.96	1.0219E-03	7.8929E-04	6.5108E-10
82	62.63	285.90	121679.5	15.96	1.1601E-03	9.1792E-04	8.0000E-10
80	60.67	311.20	120800.5	17.96	1.2792E-03	1.0375E-03	6.8934E-10
78	59.87	361.63	120068.5	20.96	1.5114E-03	1.2572E-03	8.9590E-10
76	58.17	402.23	120325.0	22.96	1.6755E-03	1.4304E-03	9.4952E-10
74	59.53	425.90	121885.5	24.96	1.7150E-03	1.5037E-03	2.2836E-10
72	58.73	492.07	122036.0	27.96	1.9712E-03	1.7763E-03	9.8848E-10
70	63.87	543.73	121567.0	30.96	2.1305E-03	1.9747E-03	6.1443E-10
68	57.13	602.37	122194.0	34.96	2.3394E-03	2.2321E-03	6.0447E-10
66	57.63	674.33	122520.0	37.96	2.5613E-03	2.5179E-03	8.5629E-10
64	58.27	741.73	121948.5	41.96	2.7655E-03	2.8036E-03	5.9078E-10
62	56.43	875.30	121596.5	48.96	3.2191E-03	3.3687E-03	7.5002E-10
60	58.23	1087.27	124258.0	56.96	3.8310E-03	4.1427E-03	8.8524E-10
58	56.30	1203.37	127139.5	62.96	4.0344E-03	4.5131E-03	3.9236E-10

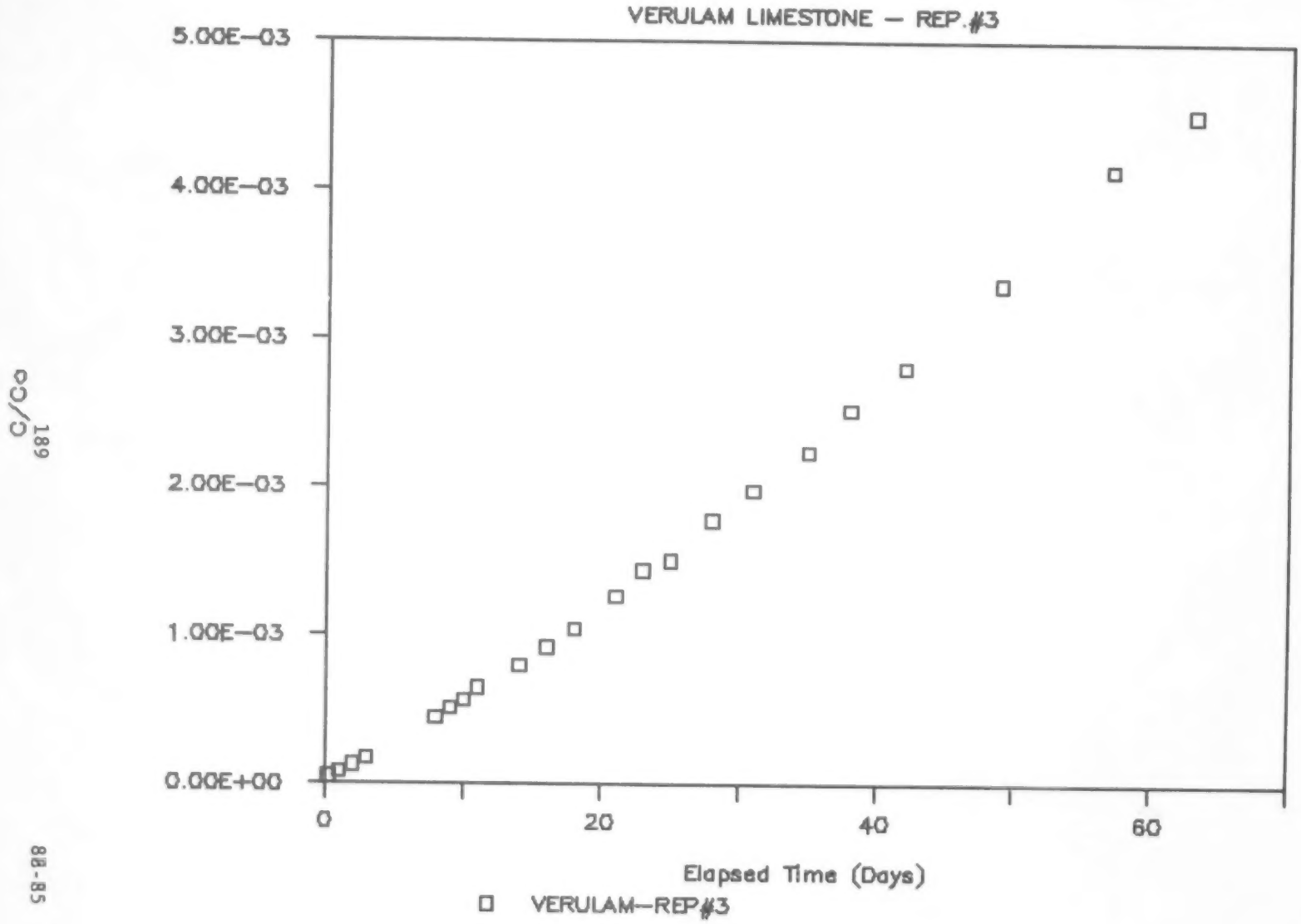
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#3
CORE THICKNESS (L) = 0.246 (cm)
CORE DIAMETER = 4.508 (cm)
SURFACE AREA (A) = 15.961 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.21	6.9050E-05
0.96	1.2079E-04
1.96	1.8355E-04
2.96	2.4492E-04
7.96	6.2425E-04
8.96	7.0429E-04
9.96	7.5359E-04
10.96	8.5310E-04
13.96	1.0219E-03
15.96	1.1601E-03
17.96	1.2792E-03
20.96	1.5114E-03
22.96	1.6755E-03
24.96	1.7150E-03
27.96	1.9712E-03
30.96	2.1305E-03
34.96	2.3394E-03
37.96	2.5613E-03
41.96	2.7655E-03
48.96	3.2191E-03
56.96	3.8310E-03
62.96	4.0344E-03

Regression Output:

Constant		1.29E-04
Std Err of Y Est		4.97E-05
R Squared		0.9981473
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	6.37E-05	
Std Err of Coef.	6.47E-07	

DARLINGTON ROCK CORE DIFFUSION – CL-36



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CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#3
NaCl RESERVOIR
CORE THICKNESS (L) = 0.246 (cm)
CORE DIAMETER = 4.508 (cm)
SURFACE AREA (A) = 15.961 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	54.80	62.53	127317.0	0.21	4.6809E-05	3.0370E-05	2.5798E-09
98	56.70	82.80	127365.5	0.96	1.5483E-04	1.0251E-04	1.6670E-09
96	67.07	110.17	126578.0	1.98	2.5204E-04	1.7034E-04	1.1030E-09
94	54.00	110.47	126847.0	2.96	3.2262E-04	2.2269E-04	8.3364E-10
92	54.40	119.47	128091.5	3.94	3.6031E-04	2.5411E-04	4.4511E-10
90	68.47	167.67	127528.0	6.98	5.3979E-04	3.8914E-04	6.8333E-10
88	55.37	178.53	127371.5	8.96	6.5602E-04	4.8368E-04	6.7938E-10
86	54.77	196.33	128271.5	10.94	7.3171E-04	5.5203E-04	4.4248E-10
84	53.20	234.10	128707.0	13.96	9.1021E-04	7.0305E-04	6.8409E-10
82	67.33	273.97	128286.0	16.96	1.0184E-03	8.0581E-04	4.1744E-10
80	66.30	406.43	127582.0	27.96	1.6444E-03	1.3337E-03	6.5870E-10
78	56.83	412.90	127714.5	28.96	1.6766E-03	1.3946E-03	3.7224E-10
76	61.97	496.00	128828.0	34.96	1.9741E-03	1.6853E-03	5.7396E-10
74	57.13	603.80	129233.0	43.00	2.4134E-03	2.1160E-03	6.3228E-10
72	52.50	704.47	128016.5	49.96	2.8270E-03	2.5475E-03	6.8778E-10
70	54.83	794.67	128232.0	56.00	3.1137E-03	2.8860E-03	5.4940E-10
68	55.70	911.03	128284.0	63.00	3.4955E-03	3.3352E-03	6.3129E-10
66	54.77	1017.57	128305.5	70.02	3.8183E-03	3.7536E-03	5.3221E-10
64	56.93	1138.40	129038.5	77.00	4.1354E-03	4.1923E-03	5.2579E-10

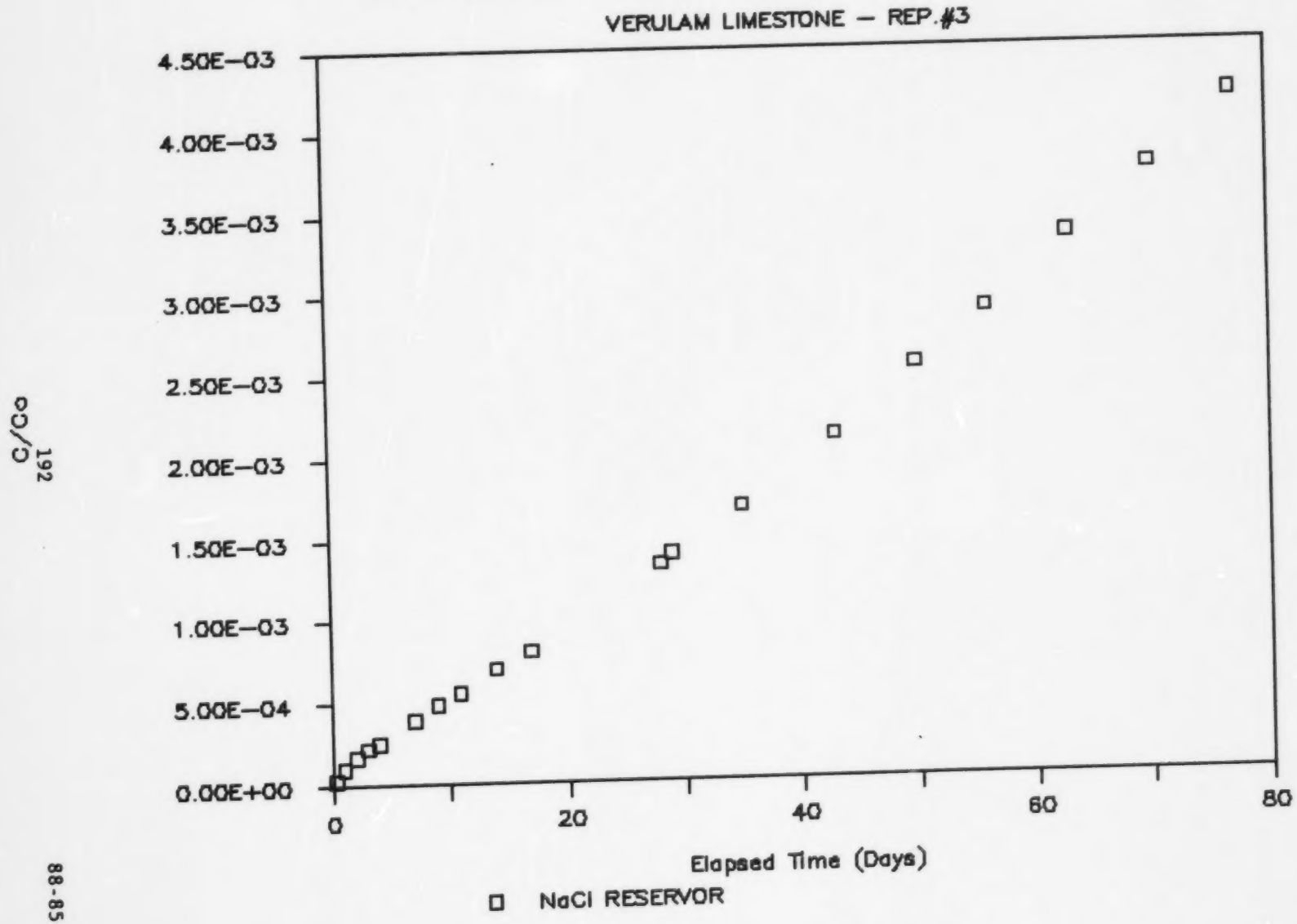
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#3
NaCl RESERVOIR
CORE THICKNESS (L) = 0.246 (cm)
CORE DIAMETER = 4.508 (cm)
SURFACE AREA (A) = 15.961 (cm^2)

Time (days)	DVL/CoA (cm^2)
0.21	4.6809E-05
0.96	1.5483E-04
1.98	2.5204E-04
2.96	3.2262E-04
3.94	3.6031E-04
6.98	5.3979E-04
8.96	6.5602E-04
10.94	7.3171E-04
13.96	9.1021E-04
16.96	1.0184E-03
27.96	1.6444E-03
28.96	1.6766E-03
34.96	1.9741E-03
43.00	2.4134E-03
49.96	2.9270E-03
56.00	3.1137E-03
63.00	3.4955E-03
70.02	3.8183E-03
77.00	4.1354E-03

Regression Output:

Constant		1.67E-04
Std Err of Y Est		2.43E-05
R Squared		0.9996246
No. of Observations		17
Degrees of Freedom		15
X Coefficient(s)	5.23E-05	
Std Err of Coef.	2.62E-07	

DARLINGTON ROCK CORE DIFFUSION - CL-36



H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#4
CORE THICKNESS (L) = 0.248 (cm)
CORE DIAMETER = 4.510 (cm)
SURFACE AREA (A) = 15.975 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	52.76	231.60	1028181.5	0.21	1.3502E-04	8.6974E-05	7.4415E-09
98	45.70	645.44	1049923.5	0.96	4.3454E-04	2.8562E-04	4.6222E-09
96	48.80	1173.57	1057173.5	1.96	7.9284E-04	5.3199E-04	4.1470E-09
94	58.97	1635.10	1053835.0	2.96	1.0913E-03	7.4785E-04	3.4545E-09
92	58.97	4119.41	1043029.0	7.96	2.7801E-03	1.9466E-03	3.9093E-09
90	58.97	4589.88	1040110.5	8.96	3.0433E-03	2.1782E-03	3.0463E-09
88	56.03	5070.30	1027147.5	9.96	3.3347E-03	2.4410E-03	3.3724E-09
86	56.16	5598.81	1025720.0	10.96	3.6074E-03	2.7020E-03	3.1555E-09
84	61.38	7008.18	1041617.5	13.96	4.3487E-03	3.3348E-03	2.8601E-09
82	60.75	7927.37	1042267.5	15.96	4.8043E-03	3.7740E-03	2.6363E-09
80	53.85	8689.36	1043425.0	17.96	5.1395E-03	4.1383E-03	1.9398E-09
78	52.78	10212.1	1025881.5	20.96	5.9960E-03	4.9518E-03	3.3046E-09
76	57.44	10963.3	1014942.5	22.96	6.3392E-03	5.3730E-03	1.9861E-09
74	53.17	12206.8	1030821.5	24.96	6.7726E-03	5.8954E-03	2.5080E-09
72	54.29	13653.1	1033270.5	27.96	7.3556E-03	6.5808E-03	2.2494E-09
70	60.59	15359.1	1032809.5	30.96	8.0488E-03	7.4067E-03	2.6742E-09
68	58.84	17649.0	1038529.0	34.96	8.9405E-03	8.4693E-03	2.5802E-09
66	56.84	18876.5	1033395.0	37.96	9.3302E-03	9.1062E-03	1.5034E-09
64	57.06	20915.3	1031189.5	41.96	1.0049E-02	1.0114E-02	2.0797E-09
62	49.45	24521.7	1034059.0	48.96	1.1390E-02	1.1834E-02	2.2171E-09
60	52.74	29704.0	1050241.5	56.96	1.3149E-02	1.4117E-02	2.5456E-09
58	52.95	33401.0	1060723.0	62.96	1.4155E-02	1.5720E-02	1.9390E-09

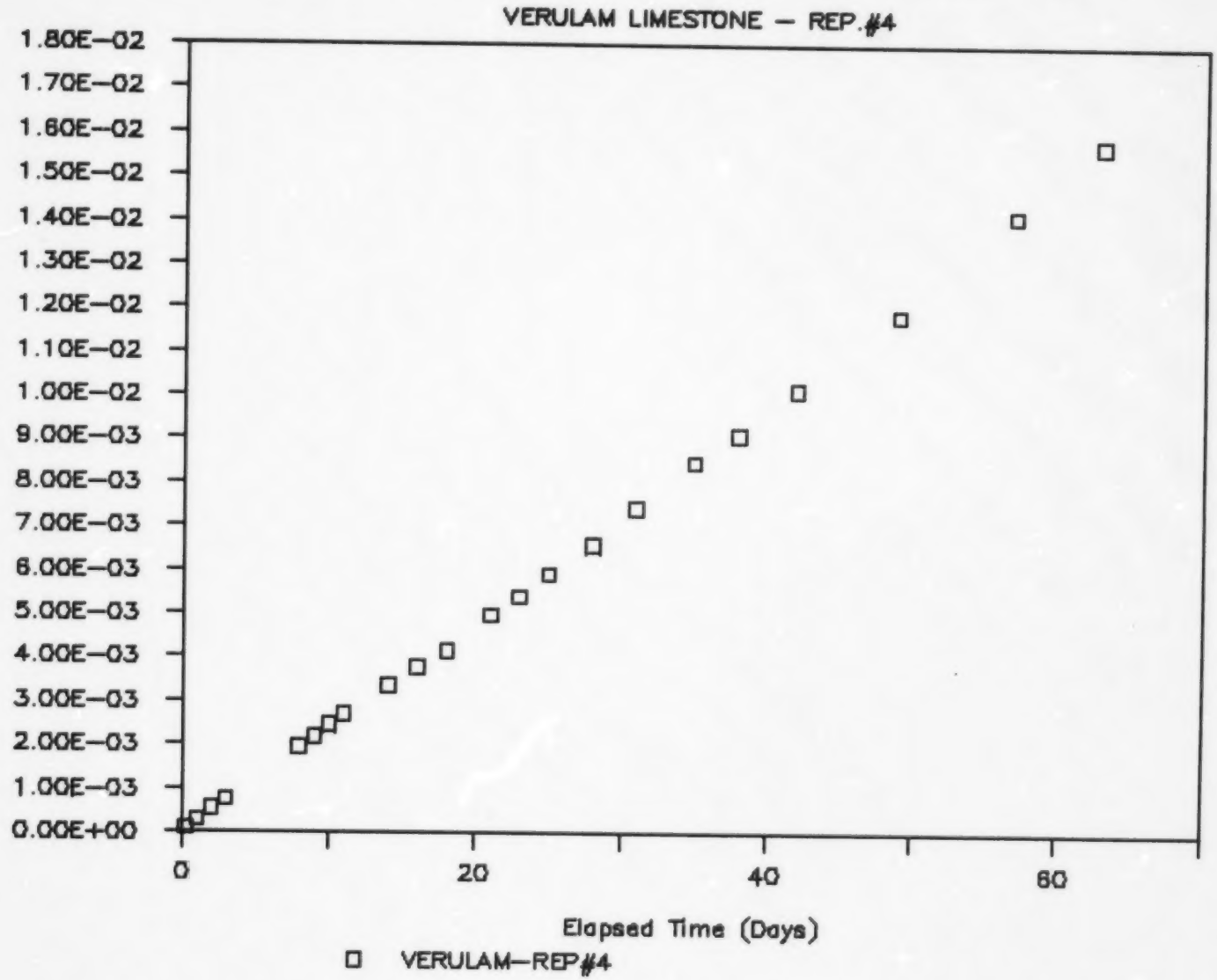
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#4
CORE THICKNESS (L) = 0.248 (cm)
CORE DIAMETER = 4.510 (cm)
SURFACE AREA (A) = 15.975 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.21	1.3502E-04
0.96	4.3454E-04
1.96	7.9284E-04
2.96	1.0913E-03
7.96	2.7801E-03
8.96	3.0433E-03
9.96	3.3347E-03
10.96	3.6074E-03
13.96	4.3487E-03
15.96	4.8043E-03
17.96	5.1395E-03
20.96	5.9960E-03
22.96	6.3392E-03
24.96	6.7726E-03
27.96	7.3556E-03
30.96	8.0488E-03
34.96	8.9405E-03
37.96	9.3302E-03
41.96	1.0049E-02
48.96	1.1390E-02
56.96	1.3149E-02
62.96	1.4155E-02

Regression Output:

Constant		1.15E-03
Std Err of Y Est		3.38E-04
R Squared		0.9924540
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	2.14E-04	
Std Err of Coef.	4.40E-06	

DARLINGTON ROCK CORE DIFFUSION – H-3



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H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#5
CORE THICKNESS (L) = 0.256 (cm)
CORE DIAMETER = 4.515 (cm)
SURFACE AREA (A) = 16.011 (cm^2)

Cell Volume (mL)	Blank (dpm)	Sample (2 mL) (dpm)	Average Standard (dpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	48.76	91.44	1029566.0	0.21	3.3143E-05	2.0728E-05	1.8267E-09
98	51.13	281.03	1043926.0	0.96	1.7255E-04	1.1012E-04	2.1514E-09
96	45.87	576.90	1037632.5	1.96	3.9280E-04	2.5590E-04	2.5491E-09
94	57.67	848.52	1037425.0	2.96	5.7292E-04	3.8118E-04	2.0847E-09
92	57.67	2356.28	1036049.5	7.96	1.6319E-03	1.1094E-03	2.4514E-09
90	57.67	2704.76	1036473.0	8.96	1.8377E-03	1.2770E-03	2.3820E-09
88	55.13	2935.16	1030725.0	9.96	1.9659E-03	1.3972E-03	1.4836E-09
86	56.11	3380.32	1029090.5	10.96	2.2211E-03	1.6152E-03	2.9531E-09
84	58.01	4325.29	1040603.0	13.96	2.7541E-03	2.0505E-03	2.0563E-09
82	57.30	4872.34	1038245.5	15.96	3.0405E-03	2.3190E-03	1.6575E-09
80	57.96	5570.57	1035097.0	17.96	3.4064E-03	2.6630E-03	2.1176E-09
78	53.62	6525.46	1036086.0	20.96	3.8954E-03	3.1234E-03	1.8866E-09
76	57.09	7249.80	1025587.0	22.96	4.2615E-03	3.5068E-03	2.1185E-09
74	53.96	7893.61	1026961.5	24.96	4.5165E-03	3.8171E-03	1.4757E-09
72	55.13	9147.21	1032334.5	27.96	5.0699E-03	4.4039E-03	2.1352E-09
70	53.16	10145.1	1034350.5	30.96	5.4605E-03	4.8786E-03	1.5067E-09
68	55.71	11861.6	1041408.0	34.96	6.1633E-03	5.6685E-03	2.0336E-09
66	56.44	13013.0	1033867.5	37.96	6.6130E-03	6.2664E-03	1.7348E-09
64	53.34	14376.7	1026577.5	41.96	7.1394E-03	6.9766E-03	1.5231E-09
62	55.29	17310.8	1030157.5	48.96	8.3031E-03	8.3756E-03	1.9243E-09
60	55.19	21289.4	1044605.5	56.96	9.7513E-03	1.0164E-02	2.0951E-09
58	51.10	23544.6	1055018.5	62.96	1.0326E-02	1.1135E-02	1.1090E-09

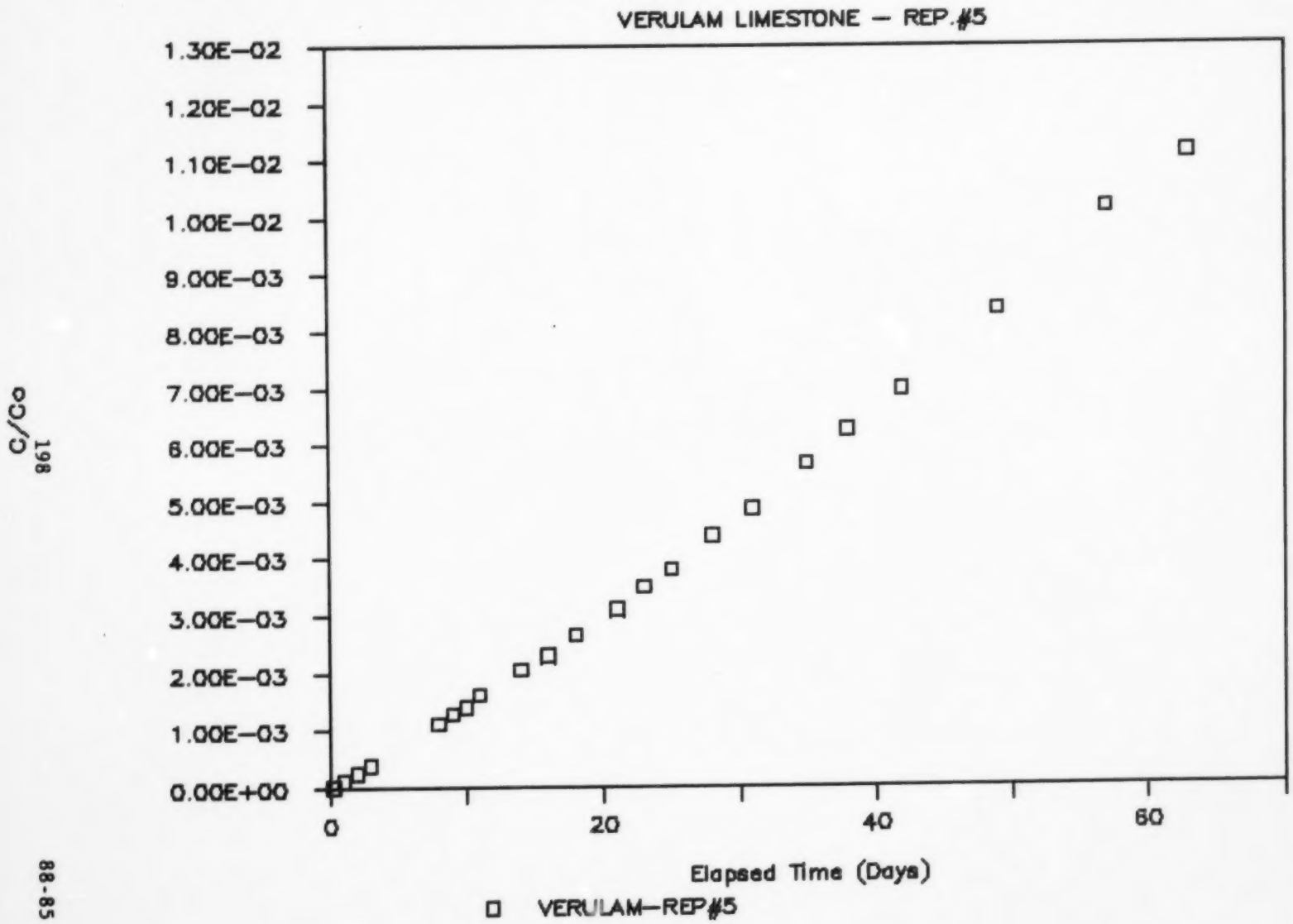
H-3 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#5
CORE THICKNESS (L) = 0.256 (cm)
CORE DIAMETER = 4.513 (cm)
SURFACE AREA (A) = 16.011 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.21	3.3143E-05
0.96	1.7255E-04
1.96	3.9280E-04
2.96	5.7292E-04
7.96	1.6319E-03
8.96	1.8377E-03
9.96	1.9659E-03
10.96	2.2211E-03
13.96	2.7541E-03
15.96	3.0405E-03
17.96	3.4064E-03
20.96	3.8954E-03
22.96	4.2615E-03
24.96	4.5165E-03
27.96	5.0699E-03
30.96	5.4605E-03
34.96	6.1633E-03
37.96	6.6130E-03
41.96	7.1394E-03
48.96	8.3031E-03
56.96	9.7513E-03
62.96	1.0326E-02

Regression Output:

Constant		3.68E-04
Std Err of Y Est		1.46E-04
R Squared		0.9975531
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	1.63E-04	
Std Err of Coef.	1.91E-06	

DARLINGTON ROCK CORE DIFFUSION - H-3



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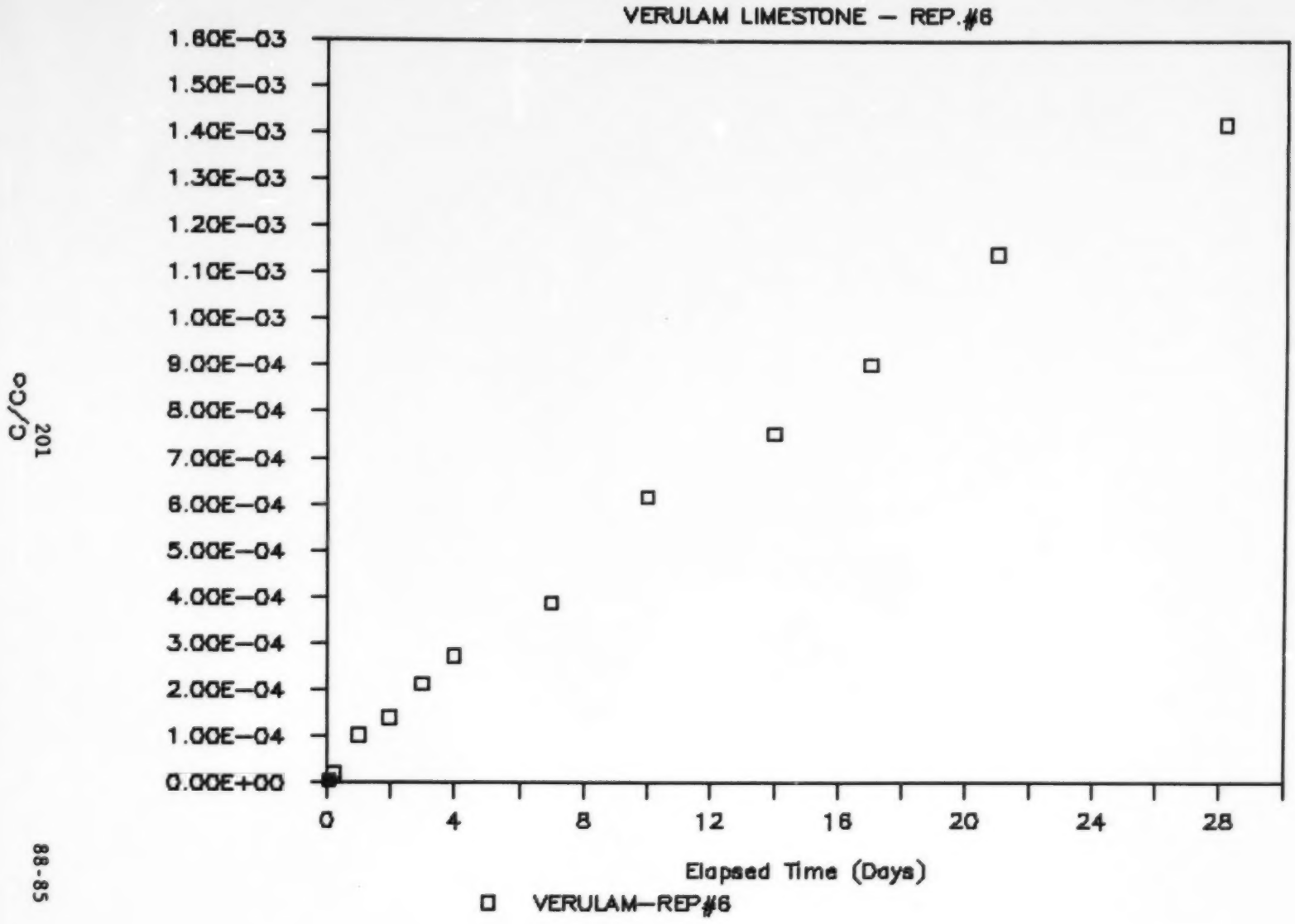
CL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#6
CORE THICKNESS (L) - 0.241 (cm)
CORE DIAMETER - 4.505 (cm)
SURFACE AREA (A) - 15.940 (cm^2)

Cell Volume (mL)	Blank (cpm)	Sample (2 mL) (cpm)	Average Standard (cpm)	Elapsed Time (days)	CVL/CoA (cm^2)	C/Co	Diffusion Coefficient (cm^2/sec)
100	57.33	58.37	121493.0	0.07	6.4743E-06	4.2821E-06	1.0705E-09
98	57.33	62.30	121267.0	0.21	3.0377E-05	2.0502E-05	1.9761E-09
96	57.33	81.90	122176.5	0.98	1.4602E-04	1.0060E-04	1.7382E-09
94	58.67	92.43	122485.0	1.96	1.9596E-04	1.3788E-04	5.8983E-10
92	54.10	105.93	122050.0	2.96	2.9548E-04	2.1243E-04	1.1519E-09
90	54.17	120.87	122380.5	3.96	3.7098E-04	2.7263E-04	8.7387E-10
88	58.60	153.70	122945.0	6.98	5.1483E-04	3.8694E-04	5.5130E-10
86	56.53	207.83	123026.5	9.98	7.9992E-04	6.1519E-04	1.0999E-09
84	58.40	242.30	122393.0	13.98	9.5459E-04	7.5163E-04	4.4756E-10
82	60.07	280.63	122285.0	16.98	1.1186E-03	9.0227E-04	6.3287E-10
80	55.67	334.83	122467.5	20.97	1.3792E-03	1.1402E-03	7.5584E-10
78	52.77	397.63	121656.5	28.08	1.6722E-03	1.4180E-03	4.7702E-10

DL-36 DIFFUSION RESULTS
DARLINGTON ROCK CORE
VERULAM LIMESTONE - REP.#6
CORE THICKNESS (L) = 0.241 (cm)
CORE DIAMETER = 4.505 (cm)
SURFACE AREA (A) = 15.940 (cm^2)

Time (days)	CVL/CoA (cm^2)
0.07	6.4743E-06
0.21	3.0377E-05
0.98	1.4602E-04
1.96	1.9596E-04
2.96	2.9548E-04
3.96	3.7098E-04
6.98	5.1483E-04
9.98	7.9992E-04
13.98	9.5459E-04
16.98	1.1186E-03
20.97	1.3792E-03
28.08	1.6722E-03

Regression Output:

Constant		1.42E-04
Std Err of Y Est		5.23E-05
R Squared		0.9909040
No. of Observations		9
Degrees of Freedom		7
X Coefficient(s)	5.69E-05	
Std Err of Coef.	2.06E-06	

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